

2005

Searching for the semantic boundaries of the Japanese colour term 'ao'

Francis Conlan
Edith Cowan University

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Abstract

The Japanese language has a colour term, 'ao' (or 'aoi'), which is usually referred to in bilingual dictionaries as being the equivalent of English 'blue'. Very often, however, it is used to describe things which English speakers would describe as being green. Granny Smith apples are 'ao', so are all Westerners' eyes, regardless of whether they would be described as being 'blue' or 'green' in English. The sky and the sea are prototypically 'ao', but this term is also used to describe lawns, forests, traffic lights and unripe tomatoes. What, then, do Japanese native speakers (henceforth JNS) understand by this term? How do its semantic boundaries relate to those of the term 'midori' ('green')? What is the JNS understanding of the foreign loan words 'guriin' (green) and 'buruu' (blue)? This study pursues these questions seeking to delineate the semantic boundaries of the colour term 'ao'.

Australian teachers of Japanese may teach that 'ao' = 'blue' for one of two reasons: ignorance of the broader semantic sweep of this term or, alternatively, as a matter of pedagogical convenience. While one can readily appreciate the convenience aspect of the teaching of a one-to-one lexical equivalence in the case of 'blue' and 'ao', one should also appreciate that such cross-linguistic simplification denies the learners of a foreign language the insight into the complexity of comparative linguistics which renders such study rewarding by imparting an understanding of the diversity involved (and imposed by language constraints) in conceptualizing and categorizing reality. Viewing the world through the prism of a foreign linguistic system opens the mind to new possibilities in terms of the categorization of phenomena and experience. Surely this should be one of the aims of foreign language study?

This research, in seeking to identify the semantic boundaries of 'ao', looks into the history of colour terminology in Japanese. Evidence is provided which supports the arguments posited by researchers such as Lucy (1992) which question the appropriateness of adopting, for languages such as Japanese, the definition of 'basic colour term' used by Berlin and Kay (1969) in relation to the English language. Furthermore, the contemporary colour term 'ao' is identified in the research as being the descendant of the original Japanese 'grue' (a non-green/blue differentiating colour term) category and, as such, responsible, in part, for the 1975 revision by Kay of the universal sequence of colour encoding proposed by Berlin and Kay in 1969.

The research seeks to a) establish the mental associations Japanese native speakers make with the term 'ao', b) identify how they use this term empirically (in

both contextualized and decontextualized environments) and c) delineate their judgments in terms of the appropriateness of 'ao' as a descriptor for a range of referents and their reasons for making these judgments. By this means the research aims to define the nature of the 'ao' schema (including investigating the extent to which it represents the original Japanese 'grue' category) and to clarify an area of ethnosemantics, [defined by Palmer (1996, p.19) as 'the study of the ways in which different cultures organize and categorize domains of knowledge], in relation to this aspect of the system of colour nomenclature employed by the Japanese language.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

- *incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;*
- *contain any material previously published or written by another person except where due reference is made in the text; or*
- *contain any defamatory material.*

Signature _____

Date _____

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From the very beginning I have been indebted to my principal supervisor, Ian Malcolm, initially Professor of Applied Linguistics at Edith Cowan University and now Emeritus Professor, and Dr Farzad Sharifian. The guidance offered by these academics has been of great assistance to me in producing this thesis. Never has either indicated any element of unwillingness to offer advice or to read drafts of chapters or chapter parts. On the contrary, I have been fortunate to have been able to formulate my thesis proposal, determine the optimum methodology, conduct my research, analyze the data obtained and draw my conclusions in the knowledge that Professor Malcolm was closely following my progress and scrutinizing my writing. For this I offer my sincerest gratitude. I also wish to express my gratitude to Professor Gary Palmer who kindly responded to a request for guidance on methodology.

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I am also indebted to the Applied Linguists Association of Australia for publishing some of the results of my research in the Australian Review of Applied Linguistics.

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Thesis Preface

As a lecturer at tertiary level with more than 20 years experience teaching the Japanese language and with a long-term interest in anthropological and sociolinguistics I felt that a significant contribution could be made to our knowledge of the Japanese language if the semantic parameters of the colour term ‘ao’ could be delineated. Over a period of 3 decades of contact with the Japanese language I had been struck on numerous occasions by seemingly inexplicable usages of this term and intrigued by native speaker reticence and apparent awkwardness in terms of offering explanations for certain usages. I was always aware that when I asked about specific usages it was possible that the response received (and this included re-wording) would be influenced by the fact that I was a ‘gaijin’ (literally ‘outsider’ but in practice used to mean ‘white English speaker [often presumed to be American]’). It struck me that there was a sense of the semantic boundaries of the term ‘ao’ being implicitly understood and agreed upon by native speakers, and of this knowledge being not easily or willingly shared with outsiders. In the same way there was a perceptible awkwardness when native speakers were asked about their evident hesitancy to use native speaker colour terms such as ‘momo-iro’ and ‘daidai-iro’ preferring instead the imported terms ‘pinku’ and ‘orenji’ for the colours pink and orange.

Early on in my experience I hypothesized that the foreign loan terms ‘buruu’ (blue) and ‘guriin’ (green) might be being used for my benefit when attempts to explain the use of the term ‘ao’ were being made. It was also the case, however, that there was evidence of these foreign loanwords being used in other contexts, so it was evident that these terms had carved niches for themselves in the Japanese language which were quite independent of the context described above. It occurred to me that there seemed to be a level of latitude accorded to the use of colour labels which defied any explanation made in terms of equating ‘ao’ with ‘buruu’ and with ‘blue’. It certainly didn’t seem to be the case that the foreign loanwords were used exclusively (or even noticeably) with referents of obvious foreign origin or that the native colour terms were reserved for traditional items.

I also hypothesized that the use of ‘ao’ (often defined as ‘blue’), ‘midori’ (often defined as ‘green’), ‘buruu’ and ‘guriin’ might be user-specific, that is to say, idiosyncratic. While this appeared to be partially true in some cases (certain people’s idiolects allowed for preference to be given to one term or another) it did not appear to be generally true.

My third hypothesis, that the choice of term was context-specific, was borne out in certain situations (such as the fact that first class carriages on the Bullet Train are referred to as being 'guriin-sha', or 'green carriages' but that passenger service and information counters at railway stations were referred to as being 'midori-no-madoguchi', or 'midori service counters' and that in these contexts the colour terms were never interchanged) but not in all. There were many instances where native Japanese speakers seemingly freely interchanged colour terms. Fashion magazines would frequently interchange terms such as 'ao' and 'buruu' and readers would hardly appear to notice. It was evident that there was a measure of lack of consistency to be found in the way Japanese selected these colour labels.

Next I hypothesized that perhaps the post-war emphasis on the English language in the education system would have resulted in the speech of younger people being influenced by English loanwords. This hypothesis was revised during the course of data collection when it became evident that there was a proclivity for some older subjects to use the foreign loanwords. There were examples of older subjects exclusively using foreign loanwords for colour terms, yet also others who used native colour terms exclusively.

My final hypothesis embraced the idea that there were many socio-linguistic variables at play and that the Japanese speech community could happily adopt a range of usages of native and imported colour terms without seeming to be fazed at all by the apparent element of randomness involved.

There seemed to be heuristic value in the sorts of hypotheses I was making but little value in terms of delivering any clear-cut evidence which could be used to determine and delineate the semantic boundaries of the term 'ao'. It became apparent as I analyzed the ethnographic data I had gathered that there were indeed many situations in which it would not be completely wrong to use an alternative colour term, or indeed a selection of options. Determining the definitive socio-linguistic rules which governed the choice of colour descriptor was clearly going to be a challenge, if not a 'tilting at windmills' as it were. Stanlaw (1987, p. xii) points out that 'color nomenclature in Japan is immensely complex and maybe even a whole dissertation cannot adequately cover it'. The complexity of the aspect of Japanese colour nomenclature, which had puzzled me for years and which I had consequently chosen to research, was described with both wit and insight by an academic present at a Centre for Applied Language and Literature Research presentation I made at a Edith Cowan University in August 2003,

where an analogy was made with trying to nail a jellyfish to a wall for display, as opposed to selecting a ‘tidier’ corner of the language - something with more clearly definable boundaries for which the analogy of the typical big-game hunter’s prize – a lion’s head - could be drawn!

Throughout this thesis I have adopted the orthographical convention of indicating Japanese expressions in single quotation marks, with glosses following, where necessary, in parentheses. Transliterations used in this thesis are in accordance with a modified version of the Hepburn system of Romanization, but with long and short ‘o’ vowel sounds both being represented by a single ‘o’ (to avoid giving the impression that is created for English speakers that the sound should rhyme with ‘oo’ when they see that vowel doubled). This is in accordance with the common practice relating to such things as proper names (for example ‘Tokyo’ or ‘Osaka’). The long ‘e’ sound is romanized as ‘ei’, in accordance with common practice and the other vowels are doubled to indicate long sounds (e.g. ‘okaasan’, ‘kiroi’ and ‘furuutsu’).

Certain works have been accessed in the Japanese language (e.g. Fukuda, 1983; Fushimi, 1996; Kaneko, 1983; Kirihiata, 1983; Kitahara, 1997; Kobayashi, 1974; Muramatsu, 1983; Nagano, 1996; Nagasaki, 1997; Nishikawa, 1975; Tada, 1983; Takahashi, 1996; Tanigawa, 1983; Uemura, 1942) and quotes from these are translations I have provided as a professional level 3 NAATI (National Accreditation Authority for Translators and Interpreters) Japanese-English translator.

I have used the standard Australian spelling for the word 'colour' throughout this thesis except where the American spelling ('color') appeared in quotations. In such cases the quotations have been rendered according to their original orthography.

Orientation to the Study

The Japanese language has a colour term, ‘ao’ (or ‘aoi’), which is usually referred to in bilingual dictionaries as being the equivalent of English ‘blue’. Very often, however, it is used to describe things which English speakers would describe as being green. Granny Smith apples are ‘ao’, so are all Westerners’ eyes, regardless of whether they would be described as being ‘blue’ or ‘green’ in English. The sky and the sea are prototypically ‘ao’, but this term is also used to describe lawns, forests, traffic lights and unripe tomatoes. What, then, do Japanese native speakers (henceforth JNS) understand by this term? How do its semantic boundaries relate to those of the term ‘midori’ (‘green’)? What is the JNS understanding of the foreign loan words ‘guriin’

(green) and 'buruu' (blue)? This study pursues these questions seeking to delineate the semantic boundaries of the colour term 'ao'.

'Ao' (sometimes rendered as 'aoi'), is acknowledged by researchers such as McNeill (1972, p.26), Wierzbicka (1996, p.311) and Stanlaw (1997, p.256) as encompassing a wider range of colours than those designated by the English term 'blue'. Often, however, the translation provided in school textbooks gives the impression of there being a clear-cut, one-to-one correlation between 'ao' and 'blue'. Most students of Japanese in Australia probably learn that 'ao' is the Japanese term for 'blue' and that 'midori' is the term equating with 'green'. Textbook authors, like Young and Nakajima (1970, p 289) and Saka and Yoshiki (1998, p.129) for example, unequivocally equate 'blue' with 'aoi' in their textbooks. However, the study of foreign languages necessarily requires an acceptance of the fact that between any two linguistic systems, one-to-one conceptual and lexical equivalence is rare. In fact, as any linguist knows, exact equivalence of meaning for terms across languages is *exceedingly* rare, if it indeed occurs at all.

Australian teachers of Japanese may teach that 'ao' = 'blue' for one of two reasons: ignorance of the broader semantic sweep of this term or, alternatively, as a matter of pedagogical convenience. As a non-Japanese native speaker who studied the Japanese language formally at tertiary level for 10 years (7 of which were at Japanese universities) without ever having had the 'ao' schema analyzed or explained (although I was always aware of a myriad of seemingly inexplicable usages) I can easily appreciate the convenience aspect of the teaching of a one-to-one lexical equivalence in the case of 'blue' and 'ao'. In saying this, however, I hasten to add that such cross-linguistic simplification denies the learners of a foreign language the insight into the complexity of comparative linguistics which renders such study rewarding by imparting an understanding of the diversity involved (and imposed by language constraints) in conceptualizing and categorizing reality. Viewing the world through the prism of a foreign linguistic system opens the mind to new possibilities in terms of the categorization of phenomena and experience. Surely this should be one of the aims of foreign language study.

The aim of this fieldwork was to attempt to define the 'ao' cognitive schema. Certainly the various cognitive and social reasons for native speaker selection of the term 'ao' need to be explored in order to explicate just what JNS mean and understand by the use of this term. The research I conducted to seek such explication revealed an

interesting interplay between the native terms 'ao' and 'midori' and between these and the loanwords 'buruu' and 'guriin'. Conclusions drawn are based on the results of ethnographic fieldwork conducted with JNS both in Japan and Australasia. The fieldwork involved data collected from a total of 175 JNS, divided into 3 separate cohort samples: 65 informants who completed questionnaires relating to word associations, a separate group of 45 JNS informants who participated in oral interviews and a further group of 65 informants who completed questionnaires indicating their judgment in terms of the appropriateness of using 'ao' as a descriptor for certain stated referents and offering their reasons for their judgments.

This research reports on 'ao' prototypes and prototype theory's good and bad examples of referents for the four colour terms 'ao', 'midori', 'buruu' and 'guriin'. It explores, from both the semasiological and onomasiological perspectives, the relationships of entailment and the processes of exclusion which operate when JNS select amongst the colour terms 'ao', 'buruu', 'guriin' and 'midori'. The possibilities and non-possibilities for the shared use of these colour terms are identified for a variety of referents. The thesis seeks to map how JNS conceptualize, classify and use 'ao' in respect to a variety of situations, reporting on the JNS use of colour terms to describe colour samples in both decontextualized and contextualized environments. Finally it reports on the level of appropriateness JNS deem the term 'ao' to have in relation to a number of referents, documenting the reasons offered by JNS for their judgments.

People who are familiar only with European languages might be tempted to think that Japanese is an odd sort of language inasmuch as it boasts a basic colour term which is acknowledged as describing an area of semantic space which is 'shared' between (and can encompass both) blue and green. Wierzbicka (1996, p.300-310) states that 'in Japanese both the terms aoi "blue, blue-green, shining green" and midori "green" are not mutually exclusive'. Many linguists, including Berlin and Kay (1969, p.42-43) and Taylor (1995, p.14), however, provide sound evidence that Japanese is by no means alone amongst the world's languages in terms of having a colour expression which does not clearly distinguish these colours. Taylor (1995, p.14) refers to the 'highly puzzling merging of blue and green in many languages of the world'.

Whereas Lee (2001, p.98) points out that for English speakers the distinction between blue and green is fundamental - the sky is definitely 'blue' and leaves are definitely 'green' - for Japanese speakers the term 'ao' (or 'aoi') is a linguistic encoding which can be used naturally to describe both of these things. The sky is described as

being ‘ao’ (‘ao-zora’), so are leaves (‘ao-ba’). The sea is also ‘ao’ (‘aoi-umi’). Although for the Japanese the sky is clearly prototypically ‘ao’, and likewise for English speakers the sky is prototypically ‘blue’, sometimes things that English speakers would normally classify as being green are also covered by the term ‘ao’ in Japanese. Traffic lights are a case in point, as are Caucasian eyes, which are all described as being ‘ao’ (‘aoi-me’), regardless of whether English speakers would refer to them as being ‘blue’ or ‘green’. McNeill (1972, p.26) reports that the distinction between the colour terms ‘ao’ and ‘midori’ is by no means clear-cut, and Stanlaw (1987, p.109) states that ‘some referents can take both [the terms] “ao” and “midori” and presumably there is a range of hues which can take both terms’.

The linguistic segmentation of this part of the colour spectrum in Japanese is further complicated by the adoption in that language of the ‘equivalent’ English loanwords ‘buruu’ (blue) and ‘guriin’ (green). On this issue Stanlaw (1987, p.247), in referring to a pervasive use of loanwords in the Japanese language, cautions that ‘English loanword color terms are not mapped synonymously with native Japanese color terms’.

The fact that ‘ao’ should not be considered a one-to-one equivalent of the English term ‘blue’, even though both colour terms may share a focal point on the colour spectrum, exemplars and indeed even prototypes, is clearly demonstrated by the listing of its usages offered by Nelson (1989, p.947-948) and reproduced in part below: (Note the character for ‘ao’ is common to every character combination.)

青	ao	blue green	青苔	ao goke	green moss
青二才	ao nisai	a green youth	青果	sei ka	vegetables, fruit
青土	ao ni	blue-black earth	青物	ao mono	vegetables
青山	ao yama/ sei zan	blue mountain/ green hills	青柳	ao yanagai	a green willow tree
青大将	ao daisho	harmless snake	青臭い	ao kusai	smelling grassy
青木	ao ki	green tree	青草	ao kusa	green grass
青少年	sei shonen	a youth	青信号	ao shingo	a green light
青天	sei ten	blue sky	青春	sei shun	adolescence
青目	ao me	blue eyes	青海	ao umi	blue sea
青写真	ao jashin	blueprint	青森	ao nori	green edible seaweed
青田	ao ta	green rice field	青海亀	ao umigame	green sea turtle
青色	sei shoku	blue	青梅	ao ume	unripe plum
青虫	ao mushi	green caterpillar	青菜	ao na	greens

青光	ao bikari	phosphorescent	青蛙	ao gaeru	green frog
青竹	ao dake	green bamboo	青筋	ao suji	blue vein
青竹色	ao dake iro	bluish green	青葉	ao ba	foliage
青年	sei nen	young people	青緑	ao midori	dark green
青豆	ao mame	green beans	青銅	sei do	bronze
青貝	ao gai	mother-of-pearl	青豌豆	ao endo	green peas
青松	sei sho	green pine	青蠅	ao bae	blowfly
青波	ao nami	blue waves	青黴	ao kabi	green mould
青空	ao zora	blue sky	青鷺	ao sagi	blue heron

In order to orientate the readers of this thesis to the semantic properties of ‘ao’ in a historical context, I refer briefly to Nagasaki (1977, p13), who reports that the oldest colour terms in the Japanese language are ‘shiro’, ‘aka’, ‘kuro’ and ‘ao’ and notes (1977, p.34) that the earliest recorded usages of colour expressions in Japanese were determined in accordance with a very general reference to levels of brightness. Each of the four terms thus encompassed a broad range of hues. Accordingly, the colour of grasses and trees (vegetation in general) and the colours of the sky and sea were all ‘ao’. He further reports that in the early days of the Japanese language the terms ‘ki’ (yellow) and ‘midori’ (green) did not exist and that ‘ao’ was used generally to describe all darkish or dim colours.

Finally, and again by way of orientating readers to this study, it is appropriate to offer a cross-linguistic comparison of the meaning of the character ‘ao’ in contemporary Japanese and Chinese. The Koseikan Simplified Chinese-Japanese Dictionary lists its meaning of ‘ao’ as i) midori-iro (green), ii) ai-iro (blue), kon-iro (navy), iii) kuro (black), iv) green coloured things (generally unripe crops) and v) youthful. Nagasaki’s research findings, taken together with those presented in this thesis, indicate that both the literal and metaphorical meanings of the character ‘ao’ have been carried over into Japanese, with different emphases in the historical and contemporary contexts.

I have structured the thesis along the following lines: Chapter 1 briefly outlines, from a Western perspective, the history of colour nomenclature research in the world. Chapter 2 then looks at the idiosyncrasies of the colour-naming system of the Japanese language. This is followed by the presentation of research findings relating to the etymology of the character ‘ao’ and the historical basis for the salience of this term in Japanese, in Chapter 3. Chapter 4 outlines my research methodology and in Chapter 5 I present the data I collected in Part 1 of the research (the mental association exercise) and an analysis thereof. Chapter 6 introduces the data collected in relation to Part 2 of

the research (the empirical usage of 'ao' as a descriptor for a set of visual stimuli, both contextualized and decontextualized) and outlines the conclusions I have drawn in relation to this. Chapter 7 presents the data collected in relation to Part 3 of the research (JNS judgments in relation to the appropriateness of 'ao' as a descriptor) and an analysis thereof. Finally, in Chapter 8 I draw together conclusions based on the findings presented in Chapters 5, 6 and 7.

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CHAPTER 1

History of Colour Nomenclature in the World

19th Century theories on the neuropsychology of colour

The study of colour nomenclature has been an area of interest for anthropologists from very early times when ethnographic studies indicated that, while the spectral division was language specific, certain languages were closer to one another than others in this regard.

In the 19th century a branch of neuropsychology called ‘phrenology’ was developed. This held that humans had a separate faculty of colour, as evidenced by a bump above the eyebrow, and that neuropsychological phenomena relating to colour were handled there and not in the back of the brain, somewhere near the visual cortex, as is now believed. Davidoff (1997, p.119) reported that the phrenologists related colour skill to being Japanese, claiming that ‘In the nineteenth century, the Japanese were considered to be the arbiters of colour taste. As they had pronounced eyebrows, here was evidence of where the colour centre was to be found’. Theories that racial differences determined colour perception or sensitivity were common and it was believed that different numbers of colour terms in a language reflected different levels of ability to perceive colour. It was widely presumed that ‘primitive’ languages possessed fewer colour expressions because racially based physiological differences prevented a universal perception of the colour spectrum. In other words it was believed that different races were at different levels of perceptual development and that this fact was reflected linguistically. Theories concerning the possible existence of linguistic universals which encompassed both what were referred to as the ‘cultured’ and the ‘primitive’ languages remained largely unexplored.

In the late 19th century Geiger (1872) suggested that there was a sequential ordering by which colour terminology was added to languages and that perhaps that ordering was initially black and red, followed by yellow, white, green and finally blue. Another late 19th century anthropologist, Magnus (1880) supported this notion of there being a sequential ordering of colour terms and noted that the blue and green categories would never precede, but always follow, linguistic encodification of the red and yellow categories. He added that this was a universal feature of linguistic development, being noticeable amongst not only the ‘cultured’ languages but also the ‘primitive’ ones. He provided evidence to suggest that, regardless of the level of linguistic development a language might have attained (in terms of the number of colour terms available), all people were physiologically able to perceive the entire spectrum.

20th Century pre-1969 history of colour nomenclature

In the first half of last century anthropological linguists made attempts to arrange systems of colour naming according to a ranking which indicated the level of development attained (‘primitive’ through to ‘developed’) based upon the number of extant colour terms different languages had. These attempts at systematization were based on the proposal that languages with few colour terms were spoken by peoples with biological deficiencies in relation to colour vision. Interestingly, the notion that there might be biological deficiencies involved in relation to colour vision is something which Nagano (1996, p.40) suggests may not have entirely disappeared from belief even today: ‘It was not that long ago that it was seriously debated in academic circles whether or not the speakers of a language in which there were only few words to describe colours were lacking in terms of physiological capacity and the ability to perceive or distinguish colours. Even in Japan today there are many foreigners who query why we call the ‘go’ traffic light ‘ao’ and ask if we are unable to perceive of the colour as green.’

Twenty years after Magnus had posited that there may be a sequential ordering of colour terms, a similar premise was proposed by Rivers (1901, 1902), who published results of research conducted amongst Egyptians and Eskimos. He concluded that racially dependent physiological differences in the structure of the eye accounted for variations in the ability to perceive differences in colour. Interestingly, in supporting Magnus’ theory that linguistic encodification of the blue and green categories would never precede, but always follow linguistic encodification of the red and yellow categories, Rivers noted that not all the peoples of the world shared the same degree of

sensitivity in terms of blue-green distinctions. It would be some 70 years after Rivers that the next anthropological linguists to examine colour terminology within the parameters of an overarching evolutionary paradigm, Berlin and Kay, would emerge.

In the early 20th century the question of linguistic differences was one which was not yet extricated from the questions of ethnicity or culture. In 1910 Woodworth published an article entitled 'The Puzzle of Color Vocabularies' in which he outlined the as then inexplicable differences in the way the colour spectrum is divided up by different languages. Anthropological theory, nevertheless, inextricably bound the question of levels of evolutionary and cultural development together with the question of levels of linguistic development. This presumption was supported by the belief that, in ancient times, the languages of Europe contained fewer terms for colours than was the case at the time of Woodworth's publication, a position later formally espoused by Dronke (1972).

By the middle of last century colour scientists had moved to the position where they concerned themselves mainly with issues such as colour matching and discrimination, colour term adaption and threshold determination and said little about the categorical structure of colour appearance. Indeed, in the early part of the 1950s anthropological linguistics and visual science were no longer considered to be directly related and it was believed that the make-up of the human colour vision system had no significant bearing in terms of constraining the linguistic expression of colour nomenclature. The hitherto assumed relationship between the biological organization of human colour vision and colour nomenclature ceased to be a premise upon which linguists and anthropologists based theories.

Linguistic relativism

Sapir and Whorf emerged in the middle of last century as protagonists of the theory of 'linguistic relativism', a theory which posited that language defines our worlds, our realities 'helping and retarding us in our exploration of experience' (Sapir 1949, p.11). It was claimed that the question of the categorization and the interpretation of reality, or 'world view', was shaped by the linguistic tools available to the speakers of any given language and that consequently one's understanding of reality was filtered through the language spoken.

Lucy (1992, p.127) reports that until the emergence of the subdiscipline of psycholinguistics in the 1950s 'the relationship between language diversity and thought did not receive a significant amount of research attention from psychologists'. Through

the 1950s there was a growing relativist belief, backed by comparative linguistic data from many different languages, that, in terms of communicative functionality, no language was intrinsically superior to any other, that each language developed independently and that the resulting relativism naturally extended to colour nomenclature. The argument that the languages of the so-called 'primitive' peoples were not in themselves primitive *per se* gained currency. The case supporting the theory of linguistic relativism proposed by Sapir and Whorf seemed to be scientifically verifiable by the myriad of ways the colour spectrum was divided by different linguistic systems. Hardin and Maffi (1997, p.1) report that 'Indeed, the supposed arbitrariness with which various languages divided color space came to be taken as paradigmatic not only of cultural relativity, but of the capacity of language to shape the perception of its speakers'.

Whorf (1956, p.213) eloquently stated his hypothesis thus:

We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – and this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it this way – an agreement that holds throughout our speech community and is codified in the patterns of our language.

The arbitrariness involved in the division of the colour spectrum was the argument propounded by numerous colour scientists of the day including Ray, Gleason and Bohannon. Ray (1952, p.252) stated that 'there is no such thing as natural division of the spectrum. Each culture has taken the spectral continuum and has divided it upon a basis which is quite arbitrary'. In reference to the way Americans would generally divide the colour spectrum, Gleason (1961, p.4) commented that "There is nothing inherent either in the spectrum or the human perception of it which would compel its division in this [the American] way". Bohannon (1963, pp.35-36) stated that:

Probably the most popular... example for describing the cultural categories that the necessity to communicate creates in human perception is to compare the ways in which different peoples cut up color into communicable units. The spectrum is a continuum of light waves... but the way different cultures organize these sensations for communication show some strange differences.

Theories concerning the alleged arbitrariness of the division of the colour spectrum were prominent right up to late 1960s. Kraus (1968, pp.268-269), in relation to the way speakers of different languages slice up the perceptual world differently, stated that ‘Our partitioning of the spectrum consists of the arbitrary imposition of a category system upon a continuous physical domain’ adding that ‘... it is also the case that the kinds of slices one makes are related to the names for the slices available in his language’. The arguments supporting the theory of linguistic relativism were convincing and remained essentially unchallenged until the end of the 1960s.

Berlin and Kay’s watershed research:

Defining basic colour terms

In 1969 the world of colour anthropological linguistic research underwent a major change of direction with the publication of the classical work of Berlin and Kay entitled ‘Basic colour terms: their universality and evolution’. Berlin and Kay were fascinated by the apparent ease with which common colour nomenclature was readily translatable between languages from around the globe. How could this be explained if the theory that the division of the colour spectrum was arbitrary and language-specific was in fact true? In their work Berlin and Kay refer to the ‘extreme linguistic relativity’ which they describe as holding that ‘...each language performs the coding of experience into sound in a unique manner. Hence, each language is semantically arbitrary relative to every other language’ (1969, p.1).

They questioned the ‘extreme linguistic relativity’ argument, claiming ‘...colour words translate too easily among various pairs of unrelated languages for the extreme linguistic relativity theory to be valid’ (1969, p.2) and argued that it was not the case that every language arbitrarily encoded lexical items for colour. They called into question widely-held beliefs in relation to the non-existence of semantic universals.

Until the appearance of Berlin and Kay’s work it was theorized that not only was the division of colour space quite arbitrary, but also that the colour terms available to speakers of a language were instrumental in shaping perception. Berlin and Kay sought to re-evaluate the voluminous ethnographic colour literature that was in existence at that time in order to re-examine the theory of linguistic relativity. In order for them to do this they sought to a) establish a set of criteria for determining what constituted basic colour terms across all languages, b) elicit ‘focal colours’ or best examples of the basic colour terms they had identified in a wide variety of languages and (c) determine the ranges applying to these basic colour terms. They proposed that basic colour terms (as

opposed to non-basic terms) should be those terms which were both generally used and held to be salient by native speakers. A term was deemed to be generally used if it was applied by native speakers to a diverse range of objects and its meaning was not subsumable under the meaning of another term. Salience was interpreted in terms of the ability to readily elicit the term from native speakers, with the condition that it was to be found in the idiolects of the great majority of speakers of a language and used consistently and with a high degree of agreement amongst individual speakers. There has been much subsequent general discussion in relation to the criteria established by Berlin and Kay to determine 'basic colour term' status across languages (see Taylor 1975, p.8; Kay and McDaniel 1978, p.612) and some discussion in this regard specific to the Japanese language (see Stanlaw 1987, pp.138 –146 and pp.178-188; Uchikawa and Boynton 1987, pp. 1826-1829).

The characteristics understood by Berlin and Kay to be conditions for 'basic colour status' are presented below in point form:

- (a) terms which are not subsumed under any other terms. This excludes terms such as 'emerald', 'crimson' and 'lemon', which are subsumed under 'green', 'red' and 'yellow' respectively.
- (b) terms which are monolexemic, or morphologically simple. Terms like 'bluish' or 'reddy-purple' are excluded.
- (c) terms which are not collocationally restricted. Terms such as 'blonde' and 'amber' are thus excluded (hair and traffic lights can be described using 'blonde' and 'amber' respectively, but these terms are not used to describe paper or fish, for example).
- (d) terms which are in frequent use. Rare colour terms like 'mauve', 'chartreuse' or 'aqua' are thus excluded.

Methodology

Berlin and Kay used an array of Munsell colour chips of maximum available relative saturation, which were arranged vertically according to brightness and horizontally according to hue, in a rectangular pattern. Native speakers of various languages were asked to provide an inventory of the basic colour terms in their language and then asked to indicate both the focus and the range of chips that could be referred to by the colour term in question. Native speakers of 20 languages (all of whom were residents of USA and living in the San Francisco area) acted as informants for the study

which was augmented with a literature search on an additional 78 languages. By this means the hitherto widely-accepted belief that languages individually and arbitrarily encoded lexical items for colour was confronted with seemingly compelling evidence to the contrary.

Theory of the evolution of colour terms

The result of Berlin and Kay's work was to diachronically indicate the prescribed patterns which determine the sequence of encoding of colour foci where languages were ordered on the basis of the number of basic colour terms they possessed.

The research carried out by Berlin and Kay found that black and white were the most common intercultural colour terms, with red being the next most common, followed by green and yellow. Only after these colour terms have been encoded does blue appear. Blue is in turn followed by brown and then, in no fixed order: purple, pink, orange and grey.

Berlin and Kay identified what they described as several stages in the evolution of basic colour terms. The stages identified and their basic colour terms are as follows:

- Stage 1: black, white (two terms)
- Stage 2: black, white, red (three terms)
- Stage 3: black, white, red, with either green (extending into blues) [3A] or yellow [3B] (four terms)
- Stage 4: black, white, red, with both green and yellow (five terms)
- Stage 5: black, white, red, green, yellow, blue (six terms)
- Stage 6: black, white, red, green, yellow, blue, brown (seven terms)
- Stage 7: black, white, red, green, yellow, blue, brown, purple, pink, orange, grey (eight, nine, ten or eleven terms)

A major conclusion drawn by Berlin and Kay was that '...there appears to be a fixed sequence of evolutionary stages through which a language must pass as its basic color vocabulary increases' (1969, p.14). The sequence in which colour terms are developed for all languages is given by the following diagram:

Figure 1.1 The sequential coding of focal colour terms

white & black -> red -> green/yellow (either order) -> blue -> brown -> purple/pink/orange /grey (any order).

Berlin and Kay describe these stages in the following way (1969, pp.2-3):

- a) all languages investigated have at least basic color terms for white and black.
- b) if a language contains three terms, it contains a term designating a color category focussed at red.
- c) If a language contains four basic terms, the next term encoded names a colour category focussed at either green or yellow, but not both.
- d) If a language contains five basic terms, it contains names for categories focussed at both green and yellow.
- e) If a language contains six basic terms, the sixth term designated is focussed in blue.
- f) If a language contains seven basic terms, the seventh term designates a brown-focussed category.
- g) If a language contains eight or more basic colour terms, then it contains terms designating color categories focussed in pink, purple, orange, grey, or some combination(s) of these colors.

They state that ‘...the basic color categories are partially ordered ...so that if a language encodes a category from a given class, it must encode all categories from each prior class’ (Berlin and Kay 1969, p.14). From their research they drew the following conclusions: a) all languages had at least two basic colour terms with the total number generally being considered to be eleven, but possibly stretching to a maximum of twelve (Russian and Japanese have terms for dark blue which can be considered for basic colour term status), b) there is a significant universality in terms of the perceptual categories involved and c) the sequential order of encodification of these basic colour terms is partially constrained. Further, Berlin and Kay surmised that there was a measure of correlation between the level of complexity in a linguistic community and the number of colour terms it had. The technologically advanced, complex cultures, it was believed, were characterized by more basic colour terms than were simpler societies.

The fact that, in terms of the best examples of colour terms, there was a high degree of correlation amongst the various languages studied (i.e. there is a universal clustering of ‘focal colours’) and also that there was a high degree of demonstrable

commonality in terms of the sequential ordering of colour nomenclature encodification across languages, was taken by many as proof of there indeed being universalist implications in relation to the linguistic encoding of colour. The fact that there was considerable variance noted when ranges of hues were compared (it was found that speakers of different languages disagreed on the boundaries between contiguous colours, that speakers of the same language disagreed among themselves and that individual speakers were not consistent when tested at various times) did not alter this.

Correlations between Hering's opponent-process theory and Berlin and Kay's theory concerning 'focal' colours

Approximately a century before the appearance of Berlin and Kay's work, the physiologist Ewald Hering (1874) formulated what was referred to as an 'opponent-process theory', based on the subjective appearance of the spectrum. This theory held that the red-green, yellow-blue and white-black response channels determined six unique sensory qualities which were the primary colours found at the extremes of three axes. He explained that blueness may be perceptually mixed with greenness or redness. Hence some wavelengths may be purely blue while others may appear green-blue or red-blue. However, blueness and yellowness may not be perceptually mixed. That is to say, there is no light which appears yellow-blue. Research by Wyszecki (1983) and Rossotti (1985) involving three kinds of light-sensitive cone cells has acted to confirm the original Hering hypothesis. It is currently believed that the opponent process theory of colour perception is the 'fundamental starting point for forging the links between colour vision and colour categorization' (Hardin and Maffi 1997, p.16).

Wooten and Miller (1997, p.67) explain that 'Hering hypothesized that yellowness and blueness are opposing manifestations of a single physiological process'. They go on to discuss the question of the relation between the opponent-process theory and physiology (1997, p.71) stating that 'It would be wrong to say that the theory has been proven, but the discovery of opponent color cells ... years after Hering's prediction is certainly impressive. In addition, most psychologists feel that it does provide a valid and economical description of colour perception'.

Berlin and Kay noted that their focal reds, yellows, greens and blues had hues that were remarkably close to the unique (or 'unitary') hues described by Hering's opponent-process theory. Hering's 'elementary red' is described by Kay and Maffi (1997, p.4) as being of 'unique or unitary hue, i.e., it is a red that is neither yellowish nor bluish'. They went on to explain that 'unique green is likewise neither yellowish nor

bluish, and unique yellow and blue are neither reddish nor greenish'. All hues other than red, yellow, green and blue are perceived as being blends. Purple is seen as a red-blue blend (or 'binary'), lime (or chartreuse) as a yellow-green blend, turquoise as a blue-green blend and orange as a red-yellow blend. In other words red, yellow, green and blue, when not focal colours, are always perceptual ingredients in every chromatic colour. Accordingly one would 'expect them to be more salient than any of the blends' (Hardin and Maffi 1997, p.5). Certainly the evolutionary sequence suggested by Berlin and Kay encodes these four terms before any terms for 'binaries'. The close correlation between Berlin and Kay's focal colours and the unique hues posited by Hering added considerable corroborative evidence to the universalist claims they were making.

Acknowledgment of the significance of the place of Berlin and Kay in the colour research tradition of anthropological linguistics

Pre-Berlin and Kay linguistic theory had, within the transformational-generative paradigm, postulated the existence of the sort of universals they pointed to but it was not until the publication of their research that evidence was provided to substantiate universalist arguments. Accordingly, the work of Berlin and Kay was subsequently evaluated by Sahlins (1976, p.1) as deserving 'a place among the most remarkable discoveries in anthropological science'.

Later researchers also continued to acknowledge the importance of the contribution to colour science made by Berlin and Kay. Lucy (1992, p.179) states that:

From the point of view of color research tradition, the most significant proposal by Berlin and Kay was that the color continuum was not in fact an even continuum from a psychophysical point of view, but rather was perceptually uneven, with 'focal' colors being relatively salient to all speakers regardless of language group membership'.

The evidence for this lay in the regularity across languages for the choices of focal colours in the Berlin and Kay array. It was asserted that these focals served as the referential basis for linguistic colour categories rather than its being the case, as previously proposed, that linguistic colour categories served as the basis for segmenting the colour continuum. Codability differences among colours were reinterpreted as deriving from properties of the colour domain itself and not from language. Thus Berlin and Kay's work sought to reverse much of the earlier emphasis of this tradition.

The import of Berlin and Kay's hypothesis of language universality is summed up by Lucy (1992, p.128) who indicates that their 1969 research represents a turning

point in the theory of colour nomenclature, by stating 'From a conceptual point of view the tradition concerned with color codability has evolved through two major periods: one (1953-1968) in which language was seen as determining thought and one (1969-1978) in which language was seen as reflecting thought'.

Although the physiological and cognitive mechanisms in operation were not known, the evidence provided by Berlin and Kay was sufficiently compelling for them and many of their contemporaries to feel confident that there were indeed scientifically provable aspects to language which fitted the universalist paradigm, particularly the proposal that there is a restricted and universal inventory of colour categories and that languages add basic colour terms in a constrained, fixed order which they referred to as a 'sequence of evolutionary stages' (Berlin and Kay 1969, p.4).

Post Berlin and Kay universalist explorations

In the wake of the Berlin and Kay's research a great deal of new field work was carried out by anthropologists and psychologists in order to seek further insights into their universalist claims. As the complexities concerning the science of neurophysiology and the physiological mechanisms of colour perception became better understood, however, the arguments put forward by Berlin and Kay in 1969 came to be critically appraised. Consequently their hypotheses underwent change and more detailed formulation which resulted in refinements being made to their original arguments. Their theory of the sequential development of colour terms was criticized by McNeill (1972, p.22), Sampson (1980b, p.96) and Taylor (1995, p.10) amongst others. McNeill (1972, p.22) asserts that 'there is no universal sequence in which colour terms arise, because this order is determined by the function of colour terms in a culture' and that 'there is a kind of universality in the human perception of color based on the physiology of vision, and it has at times played a role in the emergence of color terms'. Taylor mentions that for twenty of the languages investigated, Berlin and Kay had access only to bilingual informants who happened to be available in the San Francisco area. It is suggested by Taylor that the responses of these informants could have been influenced by their bilingualism and their exposure to a technological culture. He adds that 'Even more suspect are the data for the remaining seventy-eight languages in the survey'. These were gleaned from dictionaries, anthropologists' reports (some dating from the last century), and oral reports from field workers'.

Suggestions were made that just twenty languages studied experimentally were insufficient to justify claims of universality and that the reliability of the data gathered

by Berlin and Kay was questionable as it represented atypical samples of language use, being collected in USA and not being obtained from native communities. Other concerns linguists held in relation to the data used by Berlin and Kay were that there were small numbers (two or three) of informants involved for most of the languages and that the interviewers were not generally skilled speakers of the languages being studied.

In the early 1970s there were explorations of a universalist nature which sought to close gaps in the literature which included work with languages which had only two terms (stage 1 languages), something which was absent from the work of Berlin and Kay. Notable amongst the research carried out was that on the language of the Dani people of New Guinea (Heider, 1972; Heider and Oliver, 1972), on Eskimo (Heinrich, 1972, 1977), on Mam (Harkness, 1973), on Bellona (Kuschel and Monberg, 1974), on Binumarien (Hage and Hawkes, 1975), on Aguaruna (Berlin and Berlin, 1975), on Proto-Polynesian (Branstetter, 1977) and on Proto-Mayan (Witkowski and Brown, 1981). The plethora of research explorations was not limited to languages at the early stages of colour terminology development. Languages such as Japanese (McNeill, 1972; Hayes et al., 1972; Hinds, 1974; Zollinger, 1976; Caskey-Sirmons and Hickerson, 1977; Iijima et al. 1981) and English (Heider and Oliver, 1972; Mervis, Catlin and Rosch 1975, Rosch, 1973, 1973a, 1973b and 1973c; Lucy and Shweder, 1979), which were well developed in terms of colour nomenclature, were also researched. In addition research was inspired into the following languages: German (Hayes et al., 1972), Russian (Hayes et al., 1972), Rumanian (Hayes et al., 1972), French (Hayes et al., 1972), Spanish (McClure, 1974; Bolton, 1978; Hayes et al., 1972), Korean (Caskey-Sirmon and Hickerson, 1977), Cantonese (Caskey-Sirmon and Hickerson, 1977) and Arabic (Bender, 1983; Baines, 1985). It was soon acknowledged that the new data indicated it was inadequate to concern oneself only with colour terminology, but that rather the focus should be spread to include perceptual categories. It was acknowledged that, on the strength of their findings about the cross-linguistic similarities of focal colours, Berlin and Kay had failed to recognize that ranges of colour terms at the early stages of development usually included areas which would split at a later stage and become basic terms in their own right. Dougherty, an anthropologist with an interest in West Futunese, a language of Vanuatu, suggested (1975, 1977) that such splitting could result in a blue focus emerging from a large greenish area. Japanese, however, will be shown in the next chapter to be a language for which possibly the later focus to emerge would be the green focus, with 'ao' ('blue') being an older term than 'midori' ('green') and one which covers an area which encompasses many things bearing a green hue.

The situation in relation to languages which had two colour term systems was also reviewed. Kay, Berlin, Maffi and Merrifield (1997, p.21) acknowledge that the terms used in two term systems in fact ‘contain, not terms for dark and light shades regardless of hue – as Berlin and Kay had inferred – but rather one term covering white, red, and yellow and one term covering black, green and blue, that is, a category of white plus “warm” colours versus one of black plus “cool” colours’. Kay and McDaniel (1978) reported these as ‘composite categories’ and suggested that they could focus in either white or red or yellow on one hand or in black or green or blue on the other.

With this line of reasoning in mind it was determined, for example, that the use of the term ‘red’ to cover both a broad category in what Berlin and Kay referred to as stage 2 languages and a narrower category in later stages was inappropriate and misleading. Similarly, it was posited by Heider (1972a, 1972b) that the Dani language’s two colour categories incorporated the notion of ‘cool’ hues (blues and greens) in their dark category and ‘warm’ hues (reds and yellows) in their light category. It will be reported later in this thesis that, in a similar way, the Japanese term ‘ao’, one of the oldest colour terms in the language, is described by Nagasaki (1977, p.14) as initially incorporating a notion of being ‘usugurai’ (darkish/dim), later developing to encompass the grouping of ‘cold colours’ (‘kanshoku’). The categories macro-black (encompassing the dark and the ‘cool’ hues) and macro-white (encompassing both the light and the ‘warm’ hues) were posited in the revised version of the colour term sequence proposed by Kay (1975, pp.260-265). The prefix ‘macro’ was used to indicate that it is a term for a category representing a pluralism of hues.

Grue, a bi-focal perceptual category: Revision of the proposed universal sequence of colour encoding

The revised Berlin and Kay sequence of colour encoding provided for categorical, as opposed to terminological, progression in development. This was because their original hypothesis concerning linguistic universals didn’t allow for dual foci of a single term. Terms were defined by their ‘focal’ referents and presumed to each have a single, albeit possibly somewhat variable, focus. Subsequent research indicated that dual foci, or bi-focality, were possible. Often it was the case that the green/blue area of the spectrum was involved in this question of bi-focality. In their original research Berlin and Kay (1969, p.31-33) noticed that one in four of their Tzeltal speaking subjects located the focal colour for the term ‘yas’ in the blue portion of the spectrum, despite ‘yas’ being considered to represent the green category. In reference to

this Mayan language from Central America, Berlin and Kay (1969, p.32) stated the following:

The treatment of the category *yas* 'green' in Tzeltal is of particular interest ...Of the forty Tzeltal informants from whom we gathered experimental data, thirty one indicated that the focal point of *yas* falls precisely in the area of the spectrum which corresponds to focal English green. In general usage, the maximum extension of *yas* includes greens, blue-greens, blues and some purple-blues...The remaining nine informants in our sample of forty have essentially the same maximal extension of *yas* as the previous thirty-one individuals (that is, over greens and blues) but the focal point of the category is in the blue area.

Berlin and Kay go on to interpret these findings thus:

Perhaps the most likely interpretation for these data is that Tzeltal is moving from Stage IV to Stage V, and the ambiguity for the focus for *yas* reflects this transition. It is apparent to all Tzeltal speakers that *yas* includes two major perceptual centers, green and blue.

Such bi-focality was reported also by Heinrich (1973, 1977) in relation to Eskimo, Berlin and Berlin (1975) in relation to Aquaruna, and Dougherty (1975; 1977) in relation to West Futunese.

Berlin and Berlin (1975, p.72) report that:

...the discovery that focal GRUE lies in *blue* (rather than *green*) is unexpected and provides a counter-example to the Berlin and Kay theory regarding the order in which the postulated universal colour foci are encoded in language generally.

Heinrich (1977, p.55) acknowledges different linguistic systems existing among various Eskimo individuals (largely based on geographical location), noting what he calls 'a marked overlap in the domains of green and blue' which exists for both the 'mono-morphemic' and 'bi-morphemic' systems for expressing green/blue. With a similar interest in the question of blue/green distinction Dougherty (1977, p.103) reports that:

West Futunese data show that a GRUE term encoded at stage 3A or 4 may focus either in blue or green or both. It need not be consistently or exclusively focussed in green as Berlin and Kay (1969) suggested.

The revised encoding sequence allowed for the encoding of a 'blue' focal colour to precede, or occur simultaneously with, the encoding of a term with a 'green' focus. Thus it was that six years after Berlin and Kay's original hypothesis, Kay (1975,

pp.260-265) suggested that ‘grue’, a non-green/blue differentiating term, should be incorporated into the encoding sequence. Accordingly, Kay modified the original evolutionary colour scheme, incorporating this new ‘composite’ basic colour category. Iijima et al. (1982, p.257) state that this was done ‘to accommodate Japanese as well as some similar cases’ because ‘Berlin and Kay regarded the diachronic development (‘evolution’) of the Japanese colour vocabulary as an exception’ [to the proposed rules covering the universal ordering of colour coding]. They go on to point out that ‘at an earlier stage [in the development of Japanese] *ao-iro* meant *grue*’.

The original Berlin and Kay colour term (category) encoding sequence was thus modified by Kay as follows:

- Stage 1: macro-white, macro-black (two terms)
- Stage 2: white, macro-red, macro-black (three terms)
- Stage 3a: white, macro-red, grue, black (four terms)
- Stage 3b: white, red, yellow, macro-black (four terms)
- Stage 4: white, red, yellow, grue, black (five terms)
- Stage 5: white, red, yellow, green, blue, black (six terms)
- Stage 6: white, red, yellow, green, blue, black, brown (seven terms)
- Stage 7: white, red, yellow, green, blue, black, brown and purple and/or pink and/or orange (eight, nine or ten terms)

The implication that is embedded in Kay’s revised sequence of colour encoding is that as a language progresses through the stages, existing categories divide or become restricted as latter categories form. It is also noteworthy that the colour category ‘grey’ plays an interesting role in the arena of universal colour code sequencing. The evidence provided by data collected after the original Berlin and Kay research indicates that ‘grey’ can appear anywhere after stage 2 (Kay and McDaniel 1975, p.33). The unpredictability of the sequential placing of grey is attributed by Witowski and Brown (1977, p.54) to the fact that it is an achromatic colour and as such it is a manifestation of brightness rather than hue, unlike all the other colours.

Bornstein’s revisionism and blue/green indeterminacy

Amid the plethora of post-Berlin and Kay research into colour theory there was a notable revisionist perspective advanced by Bornstein and referred to by Stanlaw (1987, p.65) as the ‘visual capacity hypothesis’. Bornstein’s hypothesis revived the

argument posited by Rivers at the beginning of the 20th century, suggesting that racially-dependent physiological differences could account for differing abilities to distinguish certain pairs of basic colour terms witnessed amongst different races of people. Bornstein (1973a, 1973b, 1975) posited that varying levels of yellow pigmentation in the human eye (specifically in the cornea, the lens and the macula lutea) were responsible for differences in colour perception across ethnic groups. It was suggested that people with dark pigmentations have made certain adaptations to the physical environment, specifically the amount of ultraviolet light and the shorter wavelengths of light, and that these adaptations included increased levels of corneal pigmentation. This, it was hypothesized, could explain the high incidence of what Stanlaw (1987, p.65) refers to as the 'blue-green weakness' identified in many languages. In other words, the amount of detail in colour nomenclature, it was claimed, reflected a race's level of physical capacity for perception. If indeed this were proven to be the case then the premise underlying the search for evolutionary and pragmatic explanations of colour nomenclature would be flawed as Berlin and Kay, amongst others, have based their arguments on the presumption that human perceptual abilities are universal.

The strength of Bornstein's hypothesis is brought into question, however, as a result of his own research results in relation to the languages of the world which exhibit 'blue-green indeterminacy'. He reports (1973b, p.56) that the highest incidence of this phenomenon occurs not amongst the black people of the tropics, but amongst the North American Indians. Evidence was also provided by Berlin and Kay (1969, pp.43-44) to the effect that Western Apache has but one term, 'dukliz', which covers a wide range of blues and greens. This is a term which is not segmented linguistically at the basic colour term level. Further, they point to the native North American Hopi language in which 'green' remains a 'unitary category including greens and blues'. Similar claims are made by Berlin and Kay in relation to the Navaho language.

The literature relating to languages in the early stages of colour term acquisition indicates that languages with grue categories, such as West Futunese (see Dougherty 1977, p.117) and Tzeltal (see Berlin and Kay, 1969, pp.31-33) exhibit variable foci. Certain informants locate the focus of this category in the blue area, while others indicate the green area. This does not mean, however, that the positioning of the focus is simply random. On the contrary, the foci suggested by informants invariably fell near the universal focal colours identified by Berlin and Kay. This fact was instrumental in the dismissal of the environmental reductionist theory posited by Bornstein.

Subsequent researchers such as Lucy and Shweder (1979), Burgess, Kempton and MacLaury (1983) and Kay and Kempton (1984) have adopted the position that Bornstein's hypothesis is dismissible given that the evidence colour research presents does not generally substantiate the claims upon which it is founded.

Kay and McDaniel: further physiological research

The general dismissal of the arguments proposed by Bornstein, however, did not close the door on research positions which suggested that there might be physiological constraints operating behind the universals discovered by Berlin and Kay. Arguments made from physiological viewpoints were put forward by McDaniel (1972, 1974) and Kay and McDaniel (1975, 1978). Kay and McDaniel (1978, p.644) argued that semantic universals are 'based on pan-human neurophysiological processes in the perception of color'. It was posited that the reason there were cross-linguistic focal colours and a highly constrained universal sequence of colour encodification was that for all people the mechanism of visual perception is most sensitive/receptive at the wavelengths of the hues involved. Physiological evidence they provided (1978, pp.617-621) indicated that what is important in determining hue is the relative strengths of the states of the opposed neural cells, as the neural processing and coding of colour continues beyond experiences in the retina of the eye. Kay and McDaniel's hypothesis accounts for all of the basic colour term categories (namely macro-white, macro-black, white, macro-red, grue, black, red, yellow, green, blue, brown, purple, pink and orange) presented in the revised Berlin and Kay schedule for the encoding sequence because it implies that all colours could be considered to contain what Stanlaw suggests (1987, p.70) are 'varying amounts of...primary colors, simultaneously perceived'. Accordingly, just as orange is a mixture of red and yellow and purple is a mixture of red and blue, so grue is explained as being a mixture of blue and green while macro-red is a mixture of red and yellow, macro-white is a mixture of white, red and yellow, and macro-black is a mixture of black, green and blue.

The physiological primacy arguments posited by Kay and McDaniel imply that the acquisition of colour terminology by native speaker children of any given language perhaps would indicate a degree of conformity with the evolutionary encoding sequence. Stanlaw (1987, p.71) reports that the data from several languages (American English, West Futunese, Spanish, Mam and Russian) 'generally support [the] contention that the ontogenic sequence conforms to the universal phylogenetic sequence'.

Research results reported by Bornstein, Kessen and Weiskopf (1976) were supportive of the position outlined by Kay and McDaniel.

From about the time of the publication of Kay and McDaniel's research in the late 1970s the world of colour research generally moved in the direction of seeking to synthesize the relativist and universalist viewpoints into a unitary theory which addressed the issues of colour terminology across languages and pan-human neurophysiological processes. Large scale cross-linguistic testing was seen as necessary to properly legitimise the position espoused by Berlin and Kay.

The World Colour Survey

The cross-cultural database for the use of colour terms was expanded with MacLaury's studies of colours in Mesoamerica and as a result of the World Colour Survey which was conducted by Berlin, Kay and Merrifield, starting in 1976. There were two purposes for instigating this survey. These were a) 'to assess the general hypotheses advanced by Berlin and Kay against a broader empirical basis' and b) to 'deepen our knowledge re universals, variation and the historical development of color-term systems' (Kay, Berlin, Maffi and Merrifield 1997, p.22). The empirical generalizations made by Berlin and Kay (1969) were questioned for a number of reasons, notably the limited number of languages involved, the fact that much of the data was not gathered *in situ* but rather from artificial contexts and the very small number of participants representing certain languages.

In the World Colour Survey, data comparable to Berlin and Kay's were collected using a comparable stimulus array. Major improvements on the original Berlin and Kay work included the breadth of the study (110 languages were researched), the fact that it involved *in situ* fieldwork in all instances and the fact that in most cases 25 speakers of the languages being researched were involved.

The results of World Colour Survey can be summarized as follows:

The assumption that all composite categories (combinations of the six fundamentals) are eliminated in favour of the six fundamentals before any derived categories appear was questioned. Kay, Berlin and Merrifield (1991) reported that further cases of grey appearing early had been established and that brown, purple or both not infrequently appeared before the green/blue composite was dissolved.

The yellow/green composite was identified in some languages. Kay (1975, pp.260-261) had previously noted that there might be composite categories of yellow/green in some languages.

An explanation was offered for the few cases of composite categories encountered.

Whilst the results of the World Colour Survey deepened insights into cross-linguistic research, it remained evident that the question of linguistic universalism versus relativism was a complex one, requiring considerable further research before clear-cut pronouncements could be made. Indeed the lack of clear-cut definitions and boundaries proved in itself to be an aspect of the colour categorization phenomenon which colour researchers were to focus on in the late 1970s.

Fuzzy set theory.

Chafe (1970, p.80) was perhaps the first colour researcher to propose the notion of 'fuzzy set theory' in relation to colour categories, although it wasn't until 1978 that Kay and McDaniel formalized the concept. Kay and McDaniel (1978, p.612) proposed that 'colour categories, like the neurophysiological processes that underlie them, are continuous functions; and that a non-discrete formalism, in this instance fuzzy set theory, provides the most concise and adequate description of the semantics of basic colour terms'. They reconceptualized the Berlin and Kay evolutionary sequence in a way described by Wooten and Miller (1997, p.84) 'as a successive differentiation of colour space into three types of basic color terms' and used fuzzy set theory to model colour category structure, thus allowing for degrees of membership within a category.

Kay and McDaniel explained (1978, p.61) that colour labels 'were used sometimes to refer to a category having a particular focus, and at other times to a category having a particular extension. Moreover, the extensions referred to were not constant across occasions of use of the category label'. They went on to explain that 'These equivocations are eliminated in our present analysis of basic colour-term semantics, where non-discrete formalism of fuzzy set theory is shown to provide a unitary mechanism for describing the relationships between colour-category foci, extensions and boundaries'. Under this theory, membership of any given term colour category was not an absolute matter, but a relative one; that is to say a matter of degree, not simply 'yes- in' or 'no- out'. Figure 1.2 illustrates this concept.

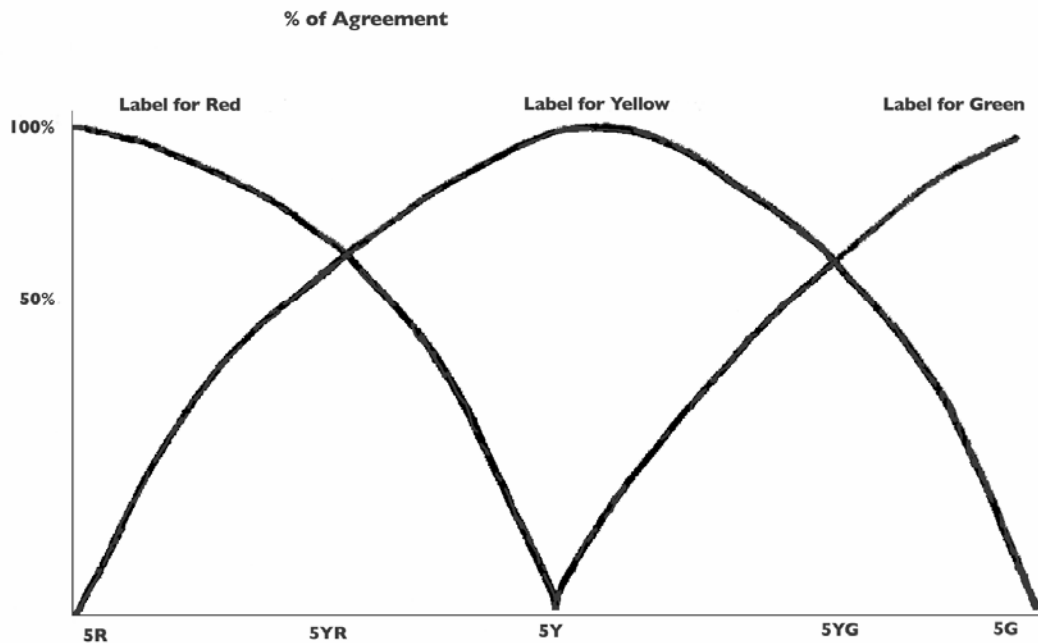


Figure 1.2 Membership of any given colour term category is not an absolute matter, but one of degree (reproduced from Stanlaw, 1987, p.76)

Figure 1.2 indicates the hypothetical plotting of the graphs of three colour labels - green, yellow and red - according to the percentage of labelling agreement found amongst informants. Each colour label peaks at a certain wavelength, and the further one moves away from this peak (in either direction) the fewer respondents identify this label. By moving away from a peak one moves towards a neighbouring peak and this results in an increase in the number of respondents selecting the neighbouring colour label as a descriptor.

Kay and McDaniel (1978, p.623) state that ‘the non-focal colours included in the extension of any given basic colour term are colours with positive but non-maximal degrees of category membership’. They refer to the fact that ‘in these non-focal regions the basic colour categories intergrade’, adding ‘colours found here are members of more than one basic category’. Accordingly, each colour category is ‘distinguished by the set

of colour percepts which are assigned some positive degree of membership in it'. Further, they state (1978, p.625) that 'neural response categories and semantic categories are both manifestly non-discrete and naturally representable as fuzzy sets' and that 'each of the neural response categories has a single point of maximal membership, as do the membership functions characterizing the corresponding semantic categories'. Actual empirical findings prompted Kay and McDaniell to make the assertion that the area of semantic space referred to by a colour term not only has variable limits which are definable by the proportion of speakers who select the term in a given situation, but also that it has fixed limitations which are the foci of adjacent fundamental colour categories. In other words, a colour term's neighbouring peaks mark the points beyond which its boundaries never extend. It was this very point which led Lehman (1985, pp.36-68) to refute fuzzy set theory in relation to colour classification. His position was that the identification of boundary limitations rendered the theory untenable. He claimed that 'If the situation were one of a true fuzzy set the possibility of finding "errant" examples of usages of a colour term should not be precluded'. Furthermore, he pointed out that at the two extremes of the visible light spectrum there was no fuzziness in existence, as neither extreme blended into another visible colour.

The research contributions of Lucy and Shweder and of Kay and Kempton

One year after Kay and McDaniell proposed the notion of fuzzy set theory Lucy and Shweder conducted research on colour mapping data and reported that, when remembering colours or describing them to others, verbal descriptions proved better than relying on universal focality or reference to basic colour terms. Thus they argued that it wasn't aspects of linguistic universality (focality) alone which assisted in communication. Linguistic relativism, as embodied in verbal descriptions of colours (which reflected unique aspects of languages) also played a role, they asserted. In pointing out that of the myriad colour terms and categories in existence reference is never made to foci when communicating, Lucy and Shweder (1979, p. 603) sought to explore the possibility of reconciling the universalist and relativist positions.

Lucy and Shweder (1979) pointed out that there was no reason why the theory of universalism could not co-exist with the theory of linguistic relativism first proposed by Whorf. The two theories were not incompatible, it was claimed. In their work reference was made to basic colour term focality as an example of a 'sublinguistic universal' whilst at the same time they argued that Whorf had never explicitly denied the existence of such a universal constraint. Lucy and Shweder, however, stopped short of endorsing

the Whorfian position that sublinguistic universals of basic colour term salience and focality do influence, if not determine, language and thought. Witkowski and Brown (1978, 1981, 1983) made the claim that memory involved either storing an image or a linguistic label in the mind. They used the hypothesis that labels could be remembered more easily than images to explain the colour mapping memory data of Lucy and Shweder. The position taken by Witkowski and Brown was at variance with that taken by Lucy and Shweder on one important dimension. They suggested that language was indeed affected by the sublinguistic universals of the focality and salience of basic colour terms. A subsequent study by Lucy and Shweder (1988) revealed that while focality may be a good predictor of memory performance, other factors, such as the absence of incidental conversation during memory tasks, increases the likelihood of focality being successfully used to aid memory.

At the time when Lucy and Shweder were conducting such studies, Kay and Kempton were carrying out work on perceptual judgment and category boundaries. A study by Kay and Kempton (1984) attempted to examine the relativity question from a typological perspective. These linguists carried out research on category boundaries and perceptual judgement by comparing American English, which lexically differentiates blue and green, with the Mexican language Tarahumara, which uses the single word 'siyona' indifferentially. One aim of the research was to examine whether the availability (or lack thereof) of the differential terms would have an effect on descriptions of the subjective colours which lie on the blue/green category boundary. It was determined that the linguistic distinction recognized by the English speakers was the cause of the American subjects exaggerating hues near the hue boundary. Lucy (1992, p.183) reports that:

Results were consistent with an interpretation that English speakers exaggerate the psychophysical distance between colours on the category boundary between green and blue in comparison with Tarahumara speakers. The implication, given the cross-linguistic regularities formulated by Berlin and Kay, is that similar perceptual differences obtain for other languages where differences among colour-term systems exist.

Summary of Chapter 1

This chapter presents a general introduction to the modern history of colour research. It commences with the 19th century neuropsychological theories of colour

perception and sensitivity and moves on through the 20th century, focussing on the work of Sapir and Whorf, the protagonists of the theory of linguistic relativity.

The significance of the 1969 groundbreaking work of Berlin and Kay in the colour research tradition of anthropological linguistics is reported on, with emphasis on a) their proposed definitions of 'basic colour terms' and b) their theory of universalism in relation to the diachronic evolution of colour terms (the sequential encoding of focal colour terms - a theory which is correlated with Hering's late 19th century opponent-process theory).

Post-Berlin and Kay research into universalist theories is reported on, with emphasis being given to the revised sequence of colour encodification suggested by Kay in 1975 which incorporated the category 'grue', a non-green/blue differentiating term. The colour encoding situation in relation to the Japanese language is acknowledged as being a factor in the need to revise the originally proposed universal ordering of colour encodification to allow for the inclusion of the composite category 'grue'.

The post-Berlin and Kay history of colour research includes Bornstein's theory of revisionism, which suggested that racially-based physiological differences could account for differing abilities in terms of distinguishing colours, and the World Colour Survey conducted by Berlin, Kay and Merrifield. This was commenced in 1976 and was instigated to further investigate Berlin and Kay's hypotheses and deepen insights into cross-linguistic research. Fuzzy set theory was to emerge from this.

It is reported that more recent research continues to deal with the opposing theories of linguistic relativism and linguistic universalism.

CHAPTER 2

General Introduction to the Japanese Language

Shibatani (1990, p.89) informs us that:

Japanese is spoken by virtually the entire population of Japan. In terms of the number of native speakers, it easily surpasses major European languages such as German and French, ranking sixth among the languages of the world after Chinese, English, Russian, Spanish and Hindi.

Furthermore, apart from Japan, which is mono-lingual, there are sizable Japanese speaking communities in Brazil, Peru, Hawaii and California. This chapter examines the nature of this language, with particular emphasis on aspects of it which pertain to colour naming.

One aspect of colour nomenclature which is unique to Japanese is the ability the language has to refer to colour names according to a choice of readings - either the native Japanese reading(s) of their Chinese orthography ('kanji') or the imported Chinese reading(s). In order to understand this point a brief introduction to the make-up of the Japanese language is necessary.

There are four recognized scripts available for use in writing Japanese. The least usual is Roman letters ('romaji') which is reserved for use in special situations and is nowhere near as common as the other three, hiragana, katakana and kanji. While Roman letters constitute a recognized script for use in Japanese, its use is rare. It is virtually never used in ordinary writing and is generally considered dispensable. Hiragana and katakana are scripts which developed in Japan from imported Chinese characters, the original writing system of the Japanese language. Hiragana represent a simplified version of a set of whole Chinese characters. In other words, each of the 46 hiragana characters can be thought of as being a simplified version of a whole Chinese character. Katakana, on the other hand, represent a simplified version of a set of certain elements of Chinese characters. Accordingly, each of the 46 katakana characters can be thought of as being a simplified modification of only a part of a Chinese character. The hiragana script is used to write words and other elements of Japanese which are of native origin.

All grammatical particles and all verbal, adverbial and adjectival declensional endings and bound morphemes must be orthographed using this script. Katakana is a script which is used to draw attention to that which is orthographed, indicating that it is special in some way. It is used widely for onomatopoeical expressions (of which there are innumerable in common usage) and for foreign loanwords which have come into Japanese from any language other than Chinese. Words of European origin which are typically encountered and written in katakana include terms relating to modern technology (for example 'konpyuuta' [computer] and 'remo-kon' [remote control] from English), and proper names (often, although not always, from English, for example 'Airurando' [Ireland] from English, 'Suisu' [Suisse i.e. Switzerland] from French and 'Churihhi' and 'Doitsu' [Zurich and Deutsche] from German. Imports from Dutch (traditionally medical terms and navigational terms), Italian (often fashion terms and music terms) French (diplomatic and culinary terms) etc. are also part and parcel of contemporary Japanese orthographed using the katakana script. Colour terms such as 'buruu' (blue), 'guriin' (green), 'kobaruto buruu' (cobalt blue), 'emerarudo guriin' (emerald green), 'orenji' (orange) and 'pinku' (pink) derive originally from English and thus are written in the katakana script when imported into the Japanese language. Both the hiragana and the katakana syllabaries are, like Roman letters, phonographic scripts. Collections of these characters need to be put together and then read before meaning is realized. By contrast, kanji are ideographic symbols and as such intrinsically carry meaning. Japanese speakers, when faced with kanji characters, usually have no difficulty understanding the meaning of the expression they encounter, however knowing how to vocalize a given kanji (or kanji combination) is quite another question. An analogy, which will assist those not familiar with kanji to understand their nature and the role they play in written Japanese, can be made to the 'no smoking' symbol of a lit cigarette pictured within a red circle and with a red diagonal line through it. While its meaning is generally understood by all who see it, the question of how it is to be vocalized depends on the linguistic environment (the language) in which it is encountered. Speakers of Japanese learn from a young age that the linguistic environment in which the kanji (or kanji combination) occurs (the context) will determine what reading(s) are deemed acceptable. Expressions which are not commonly encountered, or expressions which are notorious for their high level of idiosyncratic readings (in particular proper nouns - personal or place names) continually test even the best educated native speakers.

It is necessary to have some understanding of the history of kanji in Japanese in order to appreciate their function and the phenomenon of the multiplicity of possible readings accorded to them. It is also necessary to appreciate that any given character (or combination thereof) will always carry the same meaning, regardless of its vocal rendition. Colours are usually represented orthographically in kanji (with declensional endings, where required, written in hiragana) and can invariably be read in more than one way.

Brief background to the history and role of kanji characters in Japanese and their native Japanese and imported Chinese readings

Kanji are the characters which were developed in China some 5000 years ago. They number approximately 50,000 but in fact only about 5000 are in common use (Tokyo University of Foreign Studies, 1980, p.118). The kanji writing system was introduced to Japan about 1700 years ago via the Korean peninsula.

Because the large number of kanji was considered to be cumbersome by the post-war Japanese government, in 1946 it drew up a list of what it considered to be 1850 particularly important kanji characters and decreed that people ‘would have to make do with this number for everyday communication’ (Kanji no Chishiki, 1980, p.118). People wishing to use characters which were not included on this list in publications were required to provide phonological annotation to assist readers.

Stanlaw (1987, p.484) states that ‘because of the great differences between the Chinese and Japanese languages many morphological and syntactic forms could not be easily represented by the ideographic characters’. Of particular significance here is the non-existence of tones in Japanese. This is a major difference between the Chinese and Japanese languages. Chinese, being tonal, distinguishes otherwise homonymic expressions on the basis of tones. Japanese, on the other hand, is not a tonal language and thus many expressions, which were distinguishable by virtue of tonal differences in Chinese, are rendered homonymic in Japanese. Indeed a striking feature of the Japanese language is the large number of homonyms it possesses. These are only distinguishable from one another by the written word.

By the ninth century the hiragana and katakana syllabaries had been developed by modifying certain imported Chinese characters which carried pronunciations suitable for representing already existing Japanese words orthographically. Kanji were ideally suited to represent concepts (typically nouns and verb stems) but quite unsuitable to represent other aspects of Japanese such as inflections, case-markers and verb

conjugations. With the advent of the hiragana and katakana phonetic scripts, Japanese speakers were able to render any word or grammatical form in writing.

Over the centuries of linguistic contact between China and Japan many Chinese lexemes became nativized in Japanese. Such terms were naturally written using their original Chinese characters. However, as the borrowings took place over centuries and involved several different Chinese dialects, the situation developed by which an imported Chinese character in Japanese could have more than one Chinese reading (or ‘on-yomi’). The imported Chinese readings were not, however, considered appropriate for representing expressions which had a unique Japanese flavour to them. It thus developed that Japanese native readings (or ‘kun-yomi’) were applied to the imported characters, this process allowing the native expressions to be used in conjunction with the imported Chinese orthography. At the same time the ‘on-yomi’ which accompanied the importation of the characters from China remained a valid phonological representation thereof. The result was that in Japanese many kanji were readable according to both the ‘on-yomi’ and the ‘kun-yomi’ paradigms. In other words kanji came to be represented by two types of readings, one representing the indigenous Japanese word and the other representing the nativized pronunciation of the Chinese loanword.

The situation is complicated by dint of the fact that it is not the case that all kanji have one ‘on-yomi’ and one ‘kun-yomi’ each. There are examples of kanji which only have ‘on-yomi’ and others which only have ‘kun-yomi’. By way of illustration, Nagasaki (1977, p.68) reports that ‘The character for the colour term HANADA (blue [archaic]) has the “kun-yomi” (Japanese reading) applied, but the character for KON (navy blue) has only an “on-yomi” (the original Chinese reading) applied’. There are also characters which have several of each type of reading. Furthermore, when two or more characters join together in combination the possibilities in terms of ways of reading the overall expression grow, sometimes dramatically, as it is possible that the character combination involves an ‘on-yomi’ and ‘kun-yomi’ mixture.

Colour terms orthographed in kanji

Most colour terms can be expressed as a combination of two characters, the ‘stem’ (which is sometimes based on the characteristic colour of a referent and sometimes an abstract colour term) and the character for ‘iro’, meaning ‘colour’. In combination the characters ‘midori’ 緑 and ‘iro’ 色 can read either ‘midori-iro’ (the

‘kun-yomi’ pronunciation) or alternatively ‘ryoku-shoku’ (the ‘on-yomi’ pronunciation). We thus have the situation where ‘midori-iro’ and ‘ryoku-shoku’ are both orthographed 緑色 and both translated as ‘green’ in English. In addition, we should note that ‘midori’ alone can be used to mean ‘green’, as can the loanword ‘guriin’.

‘Momo-iro’ 桃色 (pink), however, can only read according to the ‘kun-yomi’ of both characters which form the combination, 桃 and 色. Contrary to the claim made by Stanlaw (1987, p.103), 茶色 ‘cha-iro’ (brown) does not have only a ‘kun-yomi’ but is in fact a combination of an ‘on-yomi’ pronunciation (‘cha’) and a ‘kun-yomi’ pronunciation (‘iro’), a phenomenon known as ‘juubako-yomi’ (Kanji no Chishiki, 1980, p.124). The reverse of this situation, which is described by the term ‘yuto-yomi’ (where the first character reads according to the ‘kun-yomi’ and the second according to the ‘on-yomi’), is not encountered with colour expressions. There are also no instances of compound colour expressions which read only according to the ‘on-yomi’ of the characters involved. In isolation the term ‘kon’ (navy blue), however, is always read according to its ‘on-yomi’. An expansion of the ‘on-yomi’/ ‘kun-yomi’ discourse and further discussion of kanji, specifically in relation to their importance in Japanese (with particular attention being paid to the rendition of colour terms in both the historical and contemporary contexts) will be presented in the next chapter.

Complexities involving expressing colour in the Japanese language

Expressing colour and using colour descriptors in the Japanese language is a very complex matter. Apart from the universal question of matching a given hue to colour nomenclature appropriate to the relevant portion of the spectrum, and the uniquely Japanese question, referred to above, of whether the native colour terms (as opposed to loanwords) should be orally rendered according to their original Chinese readings (‘on-yomi’) or according to the readings for them which developed in Japan (‘kun-yomi’) or a combination thereof, there are several other issues the Japanese speaker needs to address before colour terms can be expressed. The issues involved have been outlined below:

- a) is the descriptor being used nominally or pre-nominally, and how does the situation differ for ‘on-yomi’ and ‘kun-yomi’ terms?

- b) is the colour descriptor one to which ‘-i’ may attach to the stem, that is, what Stanlaw (1987, p.16) refers to as “‘true’ –i adjectives’?”
- c) is it appropriate to use the suffix ‘-iro’?
- d) is the colour descriptor one to which ‘-i’ may attach to the suffix ‘-iro’?
- e) is it more appropriate to use native colour terminology or foreign loanwords?
- f) what level of morphemic modification of the stem term is possible (for both native Japanese terms and foreign loanwords)?
- g) what level of morphemic modification of the stem term is appropriate (for both native Japanese terms and foreign loanwords)?

A knowledge of the issues outlined above is necessary to understand the complexity of the usage of Japanese colour terms and to properly understand the transcriptions of the relevant parts of the ethnographic data which are presented later in this thesis.

In order to illustrate the role of each of these issues in the Japanese language I will address them individually, in Tables 2.2 to 2.8, for all of the colours listed as being ‘basic’ in the original Berlin and Kay research of 1969, viz. ‘kuro’ (black), ‘shiro’ (white), ‘aka’ (red), ‘midori’ (green), ‘ki-iro’ (yellow), ‘ao’ (blue), ‘cha-iro’ (brown), ‘murasaki-iro’ (purple), ‘momo-iro’ (pink), ‘daidai-iro’ (orange) and ‘hai-iro’/‘nezumi-iro’ (grey). In addition I will outline the situation for the terms suggested as candidates for basic colour term status by Stanlaw (1987), viz. ‘kon’ (navy blue), ‘mizu-iro’ (aqua/light blue) and ‘ki-midori’ (yellow-green/chartreuse). The situation for the term ‘sora-iro’ (light blue), which the author suggests could be a further candidate for basic colour term status, is also investigated. The questions of what levels of morphemic modification of the stem terms are possible and appropriate for the Japanese native colour terms ‘ao’ and ‘midori’ and their ‘equivalent’ loanword terms ‘buruu’ and ‘guriin’ are reported on in Tables 2.7 and 2.8 respectively, while Table 2.1 lists the native terms considered ‘basic’ by Berlin and Kay (1969, pp.5-7), and selected others, together with their English ‘equivalent’ categories and kanji orthography.

Table 2.1

Terms referred to as ‘basic’ in the original Berlin and Kay research (1969) with ‘equivalent’ English categories and Chinese orthography.

Native basic colour terms* suggested by Berlin and Kay (1969)	English ‘equivalent’ categories	Chinese character
kuro	black	黒
shiro	white	白
aka	red	赤
midori	green	緑
ki-iro	yellow	黄色
ao	blue	青
cha-iro	brown	茶色
murasaki-iro	purple	紫色
momo-iro	pink	桃色
daidai-iro	orange	橙色
hai-iro or nezumi-iro	grey	灰色 鼠色
Native basic colour terms suggested by Stanlaw (1987)		
kon	navy blue	紺
mizu-iro	aqua, light blue	水色
ki-midori	yellow-green/chartreuse	黄緑
Possible native basic colour term suggested by Conlan (2003)		
sora-iro	light blue	空色

In listing these terms suggested by Berlin and Kay it should be borne in mind that subsequent research by Stanlaw (1987, p.144) indicates that certain loanwords from English (specifically ‘pinku’ [pink], ‘orenji’ [orange] and ‘guree’ [grey]) should be considered for basic term candidacy as evidence is presented that they are more salient than their ‘corresponding’ native terms (‘momo-iro’, ‘daidai-iro’ and ‘hai-iro’/‘nezumi-iro’).

Table 2.2.1 lists the possibilities in terms of the ‘kun-yomi’ of colour term usages in the nominative case and indicates the various suffixical changes possible when the expressions are used pre-nominally.

Table 2.2.1

Nominal and pre-nominal forms of suggested Japanese native colour terms according to the Japanese native reading of the characters ('kun-yomi').

Native basic colour terms suggested by Berlin and Kay (1969)	Nominal use Japanese native reading ('kun-yomi')	Prenominal use Japanese native reading ('kun-yomi')	Chinese character
kuro ('black')	kuro kuro-iro	kuroi kuro-iro no kuro no	黒い 黒色の 黒の
shiro ('white')	shiro shiro-iro	shiroi shiro-iro no shiro no	白い 白色の 白の
aka ('red'),	aka aka-iro	akai aka-iro no aka no	赤い 赤色の 赤の
midori ('green')	midori midori-iro	midori no midori-iro no	緑の 緑色の
ki-iro ('yellow')	ki-iro	ki-iroi ki-iro no	黄色い 黄色の
ao ('blue'),	ao ao-iro	aoi ao no ao-iro no	青い 青の 青色の
cha-iro (brown)	cha-iro*	cha-iro-i cha-iro no	茶色い 茶色の
murasaki-[iro] (purple),	murasaki murasaki-iro	murasaki no murasaki-iro no	紫の 紫色の
momo-iro (pink)	momo-iro	momo-iro no	桃色の
daidai-iro (orange)	daidai (uncommon) daidai-iro	daidai no (uncommon) daidai-iro no	橙の 橙色の
hai-iro (grey) or nezumi-iro (grey)	hai-iro or nezumi-iro	hai-iro-i hai-iro no nezumi-iro no	灰色い 灰色の 鼠色の
Native basic colour terms suggested by Stanlaw (1987)			

kon (navy blue)	kon kon-iro	kon-iro-i (uncommon) kon no kon-iro no	紺色い 紺の 紺色の
mizu-iro (aqua, light blue)	mizu-iro	mizu-iro no	水色の
ki-midori (yellow-green/chartreuse)	ki-midori ki-midori-iro	ki-midori no ki-midori-iro no	黄緑の 黄緑色の
Native basic colour term suggested by Conlan			
sora-iro (light blue)	sora-iro	sora-iro no	空色の

* This character combination is actually an example of 'juubako yomi' (it being a combination of an 'on-yomi' and a 'kun-yomi' - that is to say the first character is read according to the imported Chinese reading and the second according to the native Japanese reading). Accordingly I have included it in both tables 2.2.1 and 2.2.2.

Table 2.2.2 lists the possibilities in terms of the 'on-yomi' of colour term usages in the nominative case and indicates the various suffixical changes possible when the expressions are used pre-nominally.

Table 2.2.2**Nominal and pre-nominal forms of suggested Japanese native colour terms according to the imported Chinese reading of the characters ('on-yomi').**

Native basic colour terms suggested by Berlin and Kay (1969)	Nominal use Imported Chinese reading ('on-yomi')	Prenominal use Imported Chinese reading ('on-yomi')	Chinese character
kuro ('black'),	koku-shoku	koku-shoku no	黒色の
shiro ('white')	haku-shoku	haku-shoku no	白色の
aka ('red'),	seki-shoku	seki-shoku no	赤色の
midori ('green')	ryoku-shoku	ryoku-shoku no	緑色の
ki-iro ('yellow')	kou-shoku ou-shoku	kou-shoku no ou-shoku no	黄色の 黄色の
ao ('blue'),	sei-shoku	sei-shoku no	青色の
cha-iro (brown)	cha-iro	cha-iro-i cha-iro no	茶色い 茶色の
murasaki-[iro] (purple),	-	-	紫色
momo-iro (pink)	-	-	桃色
daidai-iro (orange)	-	-	橙色
hai-iro (grey) or nezumi-iro (grey)	- -	- -	灰色 鼠色
Native basic colour terms suggested by Stanlaw (1987)			
kon (navy blue)	-	-	紺
mizu-iro (aqua, light blue)	-	-	水色
ki-midori (yellow-green/chartreuse)	oryoku-shoku	ooryoku-shoku no	黄緑色の
Native basic colour term suggested by Conlan			
sora-iro (light blue)	-	-	空色

This table represents an expansion of the information presented by Stanlaw (1987, pp.92-93) in a number of ways. Firstly, it includes nominal terms such as 'shiro-iro' and 'kuro-iro', variant native Japanese (or 'kun-yomi') forms of the standard expressions 'shiro' and 'kuro' and the pre-nominal use of the expression 'cha-iroi' and, because of its 'cross-over' nature ('juubako yomi'), lists the terms relating to brown as belonging to both the 'native Japanese reading' and the 'imported Chinese reading'

categories. Secondly, it adds to the basic native colour terms suggested by Berlin and Kay both those offered for consideration for basic colour status by Stanlaw ('kon', 'mizu-iro' and 'ki-midori') and an additional term ('sora-iro') which I suggest might also be considered for basic colour term status as it was a descriptor used freely by JNS during my ethnographic fieldwork. Thirdly, it accurately glosses the literal meanings of the terms (correcting inaccuracies in the aforementioned research) and finally it presents the colour terms in Chinese characters, or kanji, (the usual mode of orthography).

Table 2.3 indicates which of the stems of colour expressions can take the adjectival '-i' suffix, that is to say, claim the "true" '-i adjective' status (referred to by Stanlaw 1987, p.117).

Table 2.3

Ability of colour descriptors to affix the adjectival '-i' suffix to the stem.

Stems of native basic colour terms suggested by Berlin and Kay (1969)	Ability to affix the adjectival '-i' suffix	Example
kuro ('black'),	yes	kuro-i
shiro ('white')	yes	shiro-i
aka ('red'),	yes	aka-i
midori ('green')	no	-
ki-iro ('yellow')	yes	ki-iro-i
ao ('blue'),	yes	ao-i
cha-iro ('brown')	yes	cha-iro-i
murasaki-[iro] ('purple'),	no	-
momo-iro ('pink')	no	-
daidai-iro ('orange')	no	-
hai-iro ('grey')	yes	hai-iro-i
or		(uncommon)
nezumi-iro ('grey')	no	-
Stems of native basic colour terms suggested by Stanlaw (1987)		
kon ('navy blue')	no	kon-iro-i (uncommon)
mizu-iro ('aqua', 'light blue')	no	-
ki-midori ('yellow-green' / 'chartreuse')	no	-
Stem of native basic colour term suggested by Conlan		
sora-iro ('light blue')	no	-

The fact that the term 'midori' is unable to be used with the suffix '-i' renders it rather clumsy in terms of its being used as an adjective in the pre-nominal situation. Kitahara (1997, pp.62-63) offers the following explanation as to the linguistic constraints in place which prevent the existence of the adjectival form 'midori-i'.

In acknowledging the historical circumstances by which 'ao' can be used to cover 'midori-iro' we are faced with the question as to why the term 'midori' was not more widely used nor indeed why it isn't more widely used these days. This has to do with the fact that the word 'midori' only expresses the name of a colour and that it was not possible for it to take the form of a prenominal adjective. The colour 'ao' has the corresponding adjectival form 'ao-i', but this isn't the case for 'midori'. There is no corresponding adjectival form 'midori-i'. Terms such as 'aka', 'ao', 'kuro' and 'shiro' are basic. These have the corresponding adjectival forms 'aka-i', 'ao-i', 'kuro-i' and 'shiro-i' which, in the past, took the adjectival suffix '-shi'. It is sometimes suggested that because 'midori' is a newly formed term it doesn't have an adjectival form. It is certainly the case that this is true. The fact of the matter is that it is not because 'midori' is a newly-formed term that it can't present an adjectival form in the way described above. Rather, it is due to phonological constraints which apply to the formation of adjectives overall. There are adjectives which express objective (inclusive) meanings and those which express subjective (emotive) meanings. Many in the former group conjugate by changing the final 'i' sound to a 'ku' sound. Colours are objective (inclusive) and all the colour adjectives 'aka-i', 'ao-i', 'kuro-i' and 'shiro-i' conjugate this way. It would thus follow that if there were an adjectival form for the term 'midori' it would be 'midori-i' and it would also conjugate in the same way.

Kitahara (1997, p.63) points out that there are two different kinds of Japanese adjectives which conjugate with the suffix '-ku'. One group requires just the suffix '-ku' while the other requires the suffix '-shiku'. 'Akaku' and 'aoku' are typical of the former category while 'tanoshiku' and 'yasashiku' are typical of the latter.

He further points out that in the case of adjectives which conjugate with the suffix '-ku' alone, the syllable immediately preceding the suffix '-ku' (that is, the final syllable of the stem of the word) can never belong to the 'i' line of the Japanese syllabary (that is to say 'i', 'ki', 'shi', 'chi', 'ni', 'hi', 'mi' or 'ri'). This is due to phonological constraints the Japanese language imposes. The term 'midori' is bound by this constraint as its final sound is 'ri', a member of the 'i' line of the syllabary. Thus it is that the form 'midori-i' can never exist. For the same reason the terms for purple, indigo and yellow (murasaki-i, ai-i and ki-i) can never exist as adjectives which conjugate simply with the suffix '-ku'. (Kitahara acknowledges, however, that the term for 'yellow' is properly referred to with the double suffix '-iro-i', thus rendering it possible to conjugate it with the suffix '-ku').

Kitahara expands on this argument and states that the colour expressions 'midori-iro', 'ki-iro', 'murasaki-iro' and 'ai-iro' belong to the group for which it is not

possible to form adjectival expressions by adding the suffix ‘-ku’ to the base colour term (for example ‘midori-ku’, ‘ki-ku’, ‘murasaki-ku’ and ‘ai-ku’) and that they consequently only sound very natural in their nominal forms, often with the suffix ‘-iro’. By contrast, the addition of the suffix ‘-iro’ to those colour terms which can take the suffix ‘-ku’ results in an unwieldy expression and is avoided by native speakers. Consequently the colour terms ‘ao-iro’, ‘aka-iro’, ‘shiro-iro’ and ‘kuro-iro’ are not widely used, unless in specific collocations. An example of such a collocation is the expression ‘ao-iro shinkoku’ (a blue-coloured return), the name of a form used when submitting one’s tax return to the Japanese Taxation Office.

All this draws attention to the fact that words like ‘midori’ take the suffix ‘-iro’ when used adjectivally but words like ‘ao’ generally don’t. Kitahara (1997, pp.64-65) argues that the construction of expressions incorporating the ‘midori’ morpheme is clumsy by dint of the fact that it requires the double suffix ‘-iro-no’ in order to be used pre-nominally. Furthermore, ‘midori’ doesn’t accommodate the ‘-ku’ suffix and thus lacks the ability to be separated into a ‘stem expression’ (as is the case with ‘ao’ in ‘ao-i’) and the ‘tail expression’ (‘-i’ or ‘-ku’). The resulting lack of ready ability to combine with other expressions is thought to partly explicate the lack of popular usage of the term ‘midori’ in combined expressions in Japanese. It is certainly quicker and easier to use the simple expressions ‘ao’ and ‘aoi’ than to engage the longer expression ‘midori-iro’ and its prenominal counterpart ‘midori-iro no’. Whilst not suggesting that the ‘clumsiness’ of the term ‘midori’ and its inflections alone might be used to explain the usage of ‘ao’ where one would perhaps expect ‘midori’ to be used, Kitahara does introduce a valid point which might be interpreted in terms of the possible disinclination of modern day JNS to use the term ‘midori’ when describing things which appear green but which have traditionally been described as ‘ao’.

Table 2.4 indicates the relationship between the various colour term stems and the suffix ‘-iro’. I have chosen to indicate the degree of likelihood of affixation according to the four categories ‘possible’, ‘common’, ‘virtually mandatory’ and ‘mandatory’.

Table 2.4**Ability of colour descriptors to affix the ‘-iro’ suffix to the stem.**

Stems of native basic colour terms suggested by Berlin and Kay (1969)	Use of the suffix ‘-iro’
kuro (‘black’),	possible
shiro (‘white’)	possible
aka (‘red’),	possible
midori (‘green’)	common
ki-iro (‘yellow’)	virtually mandatory
ao (‘blue’),	possible
cha-iro (‘brown’)	mandatory
murasaki (‘purple’),	common
momo-iro (‘pink’)	mandatory
daidai-iro (‘orange’)	virtually mandatory
hai-iro (‘grey’)	mandatory
or	
nezumi-iro (‘grey’)	mandatory
Stems of native basic colour terms suggested by Stanlaw (1987)	
kon (‘navy blue’)	possible
mizu-iro (‘aqua’, ‘light blue’)	mandatory
ki-midori (‘yellow-green’/ ‘chartreuse’)	possible
Stem of native basic colour term suggested by Conlan	
sora-iro (‘light blue’)	mandatory

Table 2.5 indicates the possibility or otherwise of various colour term stems accepting the dual suffixes ‘-iro’ and ‘-i’ in combination. There are no cases where such dual suffixication is mandatory.

Table 2.5**Ability of colour descriptors to affix the adjectival ‘-i’ suffix to the stem + ‘-iro’ expression.**

Stems of native basic colour terms suggested by Berlin and Kay (1969)	Use of the dual suffixes ‘-iro+i’
kuro (‘black’),	no
shiro (‘white’)	no
aka (‘red’),	no
midori (‘green’)	no
ki-iro (‘yellow’)	yes
ao (‘blue’),	no
cha-iro (‘brown’)	yes
murasaki (‘purple’),	no
momo-iro (‘pink’)	no
daidai-iro (‘orange’)	no
hai-iro (‘grey’)	yes (uncommon)
or	
nezumi-iro (‘grey’)	no
Stems of native basic colour terms suggested by Stanlaw (1987)	
kon (‘navy blue’)	yes (uncommon)
mizu-iro (‘aqua’, ‘light blue’)	no
ki-midori (‘yellow-green’/ ‘chartreuse’)	no
Stem of native basic colour term suggested by Conlan	
sora-iro (‘light blue’)	no

Table 2.6 gives an indication of the level of salience of common Japanese colour terms (including loanword colour terms) as determined by Stanlaw (1987). This provides an indication as to whether it is more appropriate, in common parlance, to employ native colour terminology or foreign loanwords when using Japanese.

Table 2.6

Salience of native colour terminology and selected foreign loanwords, as determined by Stanlaw (1987). The ranking procedure employed by Stanlaw (1987, p.144) was based on colour term frequency counts.

Native basic colour terms suggested by Berlin and Kay (1969)	Salience of native vs loanword colour term as determined by Stanlaw
kuro ('black'),	92%
shiro ('white')	97%
aka ('red'),	93%
midori ('green')	77%
ki-iro ('yellow')	81%
ao ('blue'),	91%
cha-iro ('brown')	60%
murasaki ('purple'),	50%
momo-iro ('pink')	4%
daidai-iro ('orange')	4%
hai-iro ('grey')	15%
or	
nezumi-iro ('grey')	5%
Native basic colour terms suggested by Stanlaw (1987)	
kon ('navy blue')	26%
mizu-iro ('aqua', 'light blue')	24%
ki-midori ('yellow-green' / 'chartreuse')	25%
Native basic colour term suggested by Conlan	
sora-iro ('light blue')	5%
Loanword colour terms suggested by Stanlaw (1987)	
pinku ('pink')	43%
orenji ('orange')	39%
guree ('grey')	12%

From Table 2.6 it is evident that several loanword colour terms can be considered to be far more highly salient than their 'equivalent' native expressions - in particular 'pinku' (pink) and 'orenji' (orange) as opposed to 'momo-iro' and 'daidai-iro'. Also, the colour term suggested by Conlan (p.37) as being a possible contender for basic colour status, 'sora-iro', is ranked as equally salient with 'nezumi-iro' (a native colour term for 'grey') and as slightly more salient than 'momo-iro' or 'daidai-iro'.

In arguing that salience, as defined by frequency of use, correlates extremely closely with the 'theoretical evolutionary sequence' proposed by Berlin and Kay (at least for the first 8 items - the only difference being the fact that 'aka' [red] is ranked marginally higher than 'kuro' [black] in this table) Stanlaw points out that from item no.

9 on any connections with the Berlin and Kay evolutionary sequencing are virtually completely severed. In other words, loanword terms have, by and large, taken the place of native terms as standard expressions. The fact that only 4% of Stanlaw's respondents used the native terms for pink or orange would appear to offer compelling evidence in support of his argument.

What level of morphemic modification of the stem term is possible?

There are numerous morphemic modifications possible to the stems of colour terms in Japanese. The following is not intended as an exhaustive list but rather is presented to give an appreciation of the multitude of ways in which colour term stems can undergo morphemic modification. Examples of many of the modifications listed can be found in the recorded interviews which form part of this research project. Possible morphemic modifications of the two native Japanese terms 'ao' and 'midori' and the two loanwords 'buruu' and 'guriin' are listed, together with selected common examples involving other colour terms.

Table 2.7

Possible morphemic modifications of the colour term stems (as listed in Table 2.1).

Possible morphemic modification of stem	Japanese orthography	Gloss	Examples of usage for:	Translation	Example and translation for some common usages with other colours
			ao midori buruu guriin		
-ppoi		displaying a tinge of	i) ao-ppoi ii) midori-ppoi iii) buruu-ppoi iv) guriin-ppoi	i) bluish ii) greenish iii) bluish iv) greenish	kuroppoi (blackish)
-mi		Showing a hint of, having a flavour of	i) ao-mi ii) - iii) - iv) -	i) blueness, greenness ii) - iii) - iv) -	kuro-mi (blackness) aka-mi (redness)
-gakaru*		having a suggestion of, being affected by, tinged with	i) ao-gakatta ii) midori-gakatta iii) buruu-gakatta iv) guriin-gakatta	i) tinged with blue ii) tinged with green iii)) tinged with blue iv)) tinged with green	orenji gakatta murasaki (purple tinged with orange)
-mi gakatta		-ish/ -y	i) ao-mi gakatta ii) - iii) - iv) -	i) bluish, bluey ii) - iii) - iv) -	aka-mi gakatta (reddish, red)
-obiru* -mi wo obita		-ish 'covered over with' 'wearing'	i) ao-mi wo obita ii) - iii) - iv) -	i) with blue ii) - iii) - iv) -	ki-iro wo obita (with yellow, cream-coloured)
-zumu*		(dark)ish (black)ish	i) - ii) - iii) - iv) -	i) - ii) - iii) - iv) -	kuro-zunda midori: (darkish/blackish green)

-sa	-ness	i) ao-sa ii) - iii) - iv) -	i) blueness, greenness ii) - iii) - iv) -	ki-iro-sa (yellowness)
-cha	affecting brown	i) ao-cha ii) - iii) - iv) -	i) bluey- brown ii) - iii) - iv) -	koge-cha (burnt brown)
-mu	-en, to turn (a colour)	i) ao-mu ii) - iii) - iv) -	i) to turn green ii) - iii) - iv) -	aka-(ra)mu (to redden)
-bamu*	take on the colour of	i) ao- bamu ii) - iii) - iv) -	i) turn greenish ii) - iii) - iv) -	kuro-bamu (to blacken)
ma-	bright, pure (white) jet (black) clear, unmistakable	i) ma- (ss)ao** ii) - iii) - iv) -	i) bright blue, bright green ii) iii) iv)	makka** (bright red)
yaya-	somewhat	i) yaya- ao ii) yaya- midori iii) - iv) -	i) somewhat blue ii) somewhat green iii) - iv) -	yaya ki-iro (somewhat yellow)
-kuroi	darkish-	i) ao- guroi** ii) - iii) - iv) -	i) dark blue/green ii) - iii) - iv) -	-
-shiroi	whitish-	i) ao- shiroi, ao-jiroi** ii) iii) iv)	i) bluish- white, pale ii) iii) iv)	-
usu-	pale	i) - ii) usu- midori iii) - iv) -	i) - ii) pale green iii) - iv) -	usu-murasaki (mauve/light purple)
noo-***	deep, strong	i) noo-	i) dark	noo-shi-shoku

		sei-shoku ii) noo- ryoku- shoku iii) - iv) -	blue ii) dark green iii) - iv) -	(deep purple)
-ni naru*#	to become (for noun- like adjectival expressions)	i) ao-ni naru ii) midori (iro) ni naru iii) buruu ni naru iv) guriin ni naru	i) to turn green/blue ii) to turn green iii) to turn blue iv) to turn green	ki-iro-ni naru (to turn yellow/amber)
-ku naru*#	to become (for 'i' type adjectival expressions)	i) ao-ku naru ii) - iii) - iv) -	i) to turn green/blue ii) - iii) - iv) -	shiro-ku naru (to turn white/pale)
duplication	emphasis	i) aoao ii) - iii) - iv) -	i) fresh and green ii) - iii) - iv) -	kuro-guro** (dark)

* by convention the past tense is often used as a descriptor, e.g. -gakatta, -obita, -zunda etc.

** a phonetic change is introduced for ease of pronunciation.

*** this prefix is read according to its imported Chinese reading (or 'on-yomi') and is only usable with other characters reading according to their 'on-yomi'.

the difference between -ni naru and -ku naru is that the former expression imparts a sense of immediacy, while the latter suggests change over time.

What level of morphemic modification of the stem term is appropriate?

It is evident from Table 2.7 that there are possibilities and non-possibilities involved in the bringing together of affixes and stem elements of compound colour expressions in Japanese. Generally speaking the use of affixes is restricted to native colour expressions, however this is not universally the case. The suffix '-ppoi', for example, can be used with 'ao', 'midori', 'buruu' and 'guriin', as can the suffix '-gakatta'. The prefix 'ma-', on the other hand could only ever conceivably combine with native colour expressions (inevitably necessitating phonetic changes to the stem), but this is not to say that it can combine with any native colour term. It is possible (and common practice) to use the expressions 'ma-(k)kuro' (jet black), 'ma-(s)shiro' (pure white) and 'ma-(k)ka' (bright red), although only denotatively. By contrast, 'ma-(s)sao' refers to bright blue/green when used denotatively, and carries the meaning 'white as a

sheet' when used connotatively to indicate a face drained of blood due to ill health or fear. Less common, although not unusual, is the expression '-ma(k)ki [iro]' (bright yellow). For all these expressions a phonetic change is introduced which involves a lengthening of the overall expression by one syllable. This serves to highlight the emphasis on the strength of the colour involved.

It will be noted from Table 2.7 that the colour term 'ao' is very versatile in that the great majority of affixes can join with it to form more complex colour expressions. In fact it is the colours 'shiro' (white), 'kuro' (black), 'aka' (red), 'ki-iro' (yellow) and 'ao' (blue/green) which lend themselves to natural morphemic modification. The terms 'midori-iro' (green), 'cha-iro' (brown), 'murasaki-iro' (purple), 'momo-iro' (pink), 'daidai-iro' (orange) and 'nezumi-iro'/'hai-iro' are far less flexible in this regard and foreign loanword colour terms even less so.

Expressions incorporating the stem 'ao' can function as adjectives, adjectival clauses, verbs, adverbs or nouns, depending on the morphemic modification the stem of the colour term (as listed in Table 2.1) undergoes. Examples of such modifications are listed below.

Table 2.8**Examples of appropriate morphemic modifications of ‘ao’**

Part of speech	Form	Example of usage	English translation
adjective	ao-ppoi	ao-ppoi iro	a bluish colour
adjectival clause	aoao-toshita	aoao-tosita shibafu	a fresh, green lawn (a lawn which is growing nice and fresh)
verb	pattern 1: ao-ni naru	shingoo ga ao-ni natta	the light turned green the colour turned blue
	pattern 2: ao-ku naru	iro ga ao-ku natta	
adverb	aoao-to	aoao-to shigeteiru	it’s growing in profusion
noun	ao-mi	ao-mi gakatta murasaki	purple tinged with a blueness

Prenominal use of the duplicated expression ‘ao’ (for emphasis) necessitates the use of adjectival suffixes such as ‘-shita’, ‘-toshita’ or ‘-toshiteiru’. Similarly, if being used adverbially the suffix ‘-to’ is required and must precede the verb.

Difficulties in applying the Berlin & Kay criteria for basic colour term status to Japanese

a) the condition of monolexemy (morphological simplicity)

There are several clearly identifiable problems involved in the Berlin and Kay research of 1969 in relation to Japanese. Certainly the very limited source of data (a single Japanese speaking subject from the San Francisco area) was problematic. In addition the Japanese terms listed as being ‘basic’ by Berlin and Kay contain items which, by their very nature, contravene one or more of the requirements laid down by Berlin and Kay themselves as conditional for basic colour term status. The criteria listed by Berlin and Kay for determining this status have been criticized and described in terms of their being Anglo-centric (and thus not suitable for universal application) by dint of the fact that they do not take into consideration the situation concerning the encodification of terms in the blue/green area of the spectrum in languages like Japanese. Lucy (1992, p.180) comments on the ethnocentricity of the Berlin and Kay criteria by stating ‘The term “basic colour term” is largely intuitive and fundamentally based on English’.

One difficulty which presents itself when trying to apply the Berlin and Kay criteria for basic colour status in relation to Japanese lies in the feature of the language

which allows a virtually limitless number of colour expressions to be created simply by adding the suffix ‘-iro’ (‘-coloured’) to the name of a familiar object which typically displays the colour one has in mind or which is associated mentally with prototypical examples of the colour. It will be recalled that one of the criteria laid down by Berlin and Kay for basic colour term status was that the terms need to be monolexemic, or morphologically simple. Thus terms like ‘bluish’ or ‘reddy-purple’ or terms like ‘skin-coloured’ or ‘apricot-coloured’ were excluded. The Japanese language, however, includes non-monolexemic, compound morphological expressions in several of the native colour terms listed by Berlin and Kay as being basic. These Japanese native colour terms are formed using the ‘-iro’ suffix and they are listed in Table 2.9. The terms ‘cha-iro’ (brown), ‘momo-iro’ (pink), ‘daidai-iro’ (orange) and ‘nezumi-iro’ (grey) or ‘hai-iro’ (grey) are each composed of two free morphemes in combination.

Table 2.9

Problematic ‘basic’ colour terms due to the ‘monolexemic’, or ‘morphologically simple’ criterion proposed by Berlin and Kay (1969)

Colour term	Literal meaning	Translation
cha-iro	tea-coloured	brown
momo-iro	peach-coloured	pink
daidai-iro	Seville orange-coloured	orange
nezumi-iro	mouse-coloured	grey
hai-iro	ash-coloured*	ash-coloured

*Stanlaw (1987, p.102) incorrectly translates ‘hai-iro’ as being ‘smoke-coloured’

For each of these colour expressions the failure to include the use of the suffix ‘-iro’ would indicate a clear reference to a noun as indicated in Table 2.9. Stanlaw (1987, p.102) suggests that the only possible exception to this would be the term ‘daidai’, which is now considered archaic as a term of reference for a Seville orange. Indeed, the term ‘daidai-iro’ itself is reminiscent of a bygone era and is hardly heard at all in modern Japan, its position having been usurped by the English loanword ‘orenji’ (orange). This is a further problematic area and one which brings into focus the very approach Berlin and Kay took in seeking to identify the basic colour terms in Japanese, namely, the approach which presumed native colour terms would be more salient than others and which thus excluded the consideration of foreign loanwords. This matter will be discussed in a moment.

When one is familiar with the culture, expressions which are built up by adding the ‘-iro’ suffix to a noun are readily accepted and perfectly well understood.

Expressions of this type which appear in the corpus of data pertaining to this research include 'waka kusa-iro' ('young grass-coloured' i.e. fresh, bright green) and 'wakame-iro' ('seaweed-coloured' i.e. dark green). Ultimately such terms are analyzable into labels for objects plus the '-coloured' suffix. Accordingly these are necessarily non-monolexic, compound morphological expressions which should, strictly speaking, be excluded from consideration for basic colour term status according to what Lucy considers to be the Anglo-ethnocentric conditions laid down by Berlin and Kay.

Nagano (1996, p.46) goes on to point out that even the character for 'ki' in the highly salient colour term 'ki-iro' (yellow) is the name of a colour dye, and the character for 'cha' in 'cha-iro' (brown) is a name in itself (tea) and that, furthermore, it is a borrowed usage. Likewise the characters for 'momo-iro' contravene the criterion concerning basic colour terms not incorporating the name of a thing ('peach-colour'). The alternative term is 'pinku' which is an English loanword. Nagano points out also that 'murasaki' is a colour dye and also the name of the plant from which this dye is derived (*Lithospermerythrorhizon*). The term 'daidai', as in 'daidai-iro', is the name of a fruit and the alternative term, 'orenji-iro', derives again from an English loanword (orange). Finally he points out that the term 'hai-iro' (grey) means 'ash-coloured' and this denies it legitimate basic colour term status. The alternative is 'guree', but this is again an English loanword and thus ineligible, in his book, for consideration as a basic colour term.

As is evident from the above, a feature of the Japanese system of colour nomenclature is the ability the language has to coin colour terms by adding the suffix '-iro' ('-coloured') to a noun. Examples of this sort of nomenclature are numerous and are not restricted to native Japanese terms. Table 2.10 is a non-exhaustive list of compound morphological colour terms formed by adding '-iro' to nouns which are prototypically associated with certain colours.

Table 2.10

Examples of colour terminology formed according to the formula: nouns + ‘-iro’ (coloured).

Colour term	Literal meaning	English ‘equivalent’	Chinese character
kitsune-iro	fox-coloured	light brown	狐色
komugi-iro	wheat-coloured	tan	小麦色
kuri-iro	horse chestnut-coloured	dark brown	栗色
wakakusa-iro	young grass-coloured	bright green	若草色
namari-iro	lead-coloured	dark grey	鉛色
ama-iro	flax-coloured	flaxen/golden	亜麻色
gin-iro	silver-coloured	silvern	銀色
kin-iro	gold-coloured	golden	金色
bara-iro	rose-coloured	rose/pink (generally)	薔薇色
sora-iro	sky-coloured	pale blue	空色
tamago-iro	egg (yolk)-coloured	buttercup yellow	卵色
hada-iro	skin-coloured	tawny brown	肌色
kogane-iro/ oogon-shoku *	coin-coloured	golden brown/ copper	黄金色
wakame-iro	green seaweed-coloured	dark green	若布色
kuriimu-iro**	cream-coloured	ivory/beige	クリーム色
nezumi-iro	mouse-coloured	grey	鼠色
hai-iro	ash-coloured	ash	灰色
cha-iro	tea-coloured	brown	茶色
sumire-iro	violet-coloured	violet	堇色
momo-iro	peach-coloured	pink	桃色
daidai-iro	bitter orange-coloured	orange	橙色
uguisu-iro	nightingale-coloured	greenish-brown	鶯色
toki-iro	crested ibis-coloured	yellowish pink	朱鷺色
mizu-iro	water-coloured	aqua, light blue	水色
hisui-iro	jade-coloured	jade/jade green	翡翠色
oodo-iro	loess-coloured	yellowy-brown	黄土色

shu-iro	cinnabar-coloured	vermillion	朱色
tsuchi-iro	earth-coloured	bluish-black	土色
beni-iro	rouge-coloured	crimson	紅色
azuki-iro	adzuki bean-coloured	reddy purple	小豆色
yamabuki-iro	globefflower-coloured	golden yellow	山吹色

* oogon-shoku is the ‘on-yomi’ of the character combination

** this is a nativized English loanword

The custom of adding the suffix ‘-iro’ to a noun is one which is integral to the Japanese language and one which has a very long history indeed. Nagasaki (1977, p.125) reports that no fewer than 120 such compound expressions were coined in the Heian Period of Japanese history (794 –1191AD). Certainly such compound morphological colour terms as ‘cha-iro’ (‘tea-coloured’, i.e. brown) form an integral part of the basic Japanese system of colour nomenclature. The situation in relation to compound colour expressions in English is fundamentally different to that which relates to Japanese. Casson (1997:236) tells us that:

In English culture members innovated secondary terms on the basis of an ontological metonym, which can be stated as ‘Entity stands for entity’s colour’ – that is, names for entities with characteristic colour associations are converted metonymically to colour terms. The entity names that become colour names were drawn from the plant, animal, mineral, food, and artefact domains.

Thus in English we have colour terms such as ‘lemon’, ‘salmon’ and ‘ash’, each of which literally refers to an entity but which, by extension, refers also to the colour characteristic of that entity. By contrast, the equivalent Japanese expressions would require the ‘-iro’ suffix. Hence ‘hai’ carries only an entity sense and means ‘ash’, but ‘hai-iro’ carries only a colour sense and means ‘ash-coloured’, or grey. This point is erroneously contended by Uchikawa and Boynton (1987, p.1825) who state that ‘In Japanese, the suffix *iro* is often added to a colour term; it is of no particular significance. For example, *momo* and *momoiro* mean exactly the same thing’. The terms can only be conceivably interchanged in the narrow context of a discussion between colour researchers where the suffix is dropped as a matter of expediency. In this situation it would be clearly understood that the shortened version of the colour term was in fact an abbreviation. The strange looks one would undoubtedly receive if one were to attempt to identify an article of apparel using just the word ‘momo’, or similarly if one were to order ‘momo-iro’ in a fruit shop, would provide testimony to this fact.

In addition to being an essential feature of native colour nomenclature, the suffix ‘-iro’ is versatile enough to allow its use to extend to loanwords adopted into the Japanese language. Hatch and Brown (1995, p.171) report that ‘Some languages have affixes which help to nativize borrowed words. For example, when English colour terms are employed in Japanese we find expressions like “...-iro no” (“...-coloured”) being used suffixally. Whilst this is certainly true with expressions like ‘orenji-iro no...’ (orange-coloured...) and ‘kuriimu-iro no...’ (cream-coloured...), the application of this suffix should not be considered universal as it is not possible (or at least common) to employ it with the terms ‘guriin’ (green), ‘buruu’ (blue) or ‘guree’ (grey).

Different nomenclature is introduced by later researchers in describing the question of monolexemic vs non-monolexemic expressions and simple vs compound morphological colour expressions. Corbett and Davies (1997, p.232), for example, use the expression ‘simple lexemes’ which they define as lexemes ‘whose meanings are not determinable from the meanings of internal components’. By contrast, ‘complex lexemes’ are defined as having been ‘derived through word formation processes of modification and compounding and do have paraphrastic meanings’. According to these definitions ‘midori’ (‘green’) could be considered to be a simplex lexeme but ‘fuka-midori’ (‘dark green’), ‘midori-ppoi’ (‘greenish’) or ‘kusa-iro’ (‘grass-coloured’) would be considered to be complex lexemes. As previously indicated, the situation for Japanese colour terms is that the equivalent of what Corbett and Davies refer to as ‘complex lexemes’ are common and highly salient. Such terms, however, stand in clear contravention of the conditions for basic colour term status stipulated by Berlin and Kay pertaining to monolexemicity. Having said this, it is significant to note that the distinction between ‘simple’ lexemes and ‘complex’ lexemes in Japanese colour nomenclature can sometimes be quite indistinct. As the characters for colour terms are conventionally written in the Chinese ideographic script (or ‘kanji’) their meanings are immediately identifiable by the orthography involved, the very nature of which typically allows meanings to be determinable (to a greater or lesser extent) from the meanings of internal components. Furthermore, there can be cases where the kanji ideograph carries two senses of meaning. Some colour terms are ‘synchronically polysemous’ (Casson (1997, p.233) in that they have both entity and colour senses. ‘Midori’ is such a term (‘ki’ and ‘murasaki’ are also contenders). It is used in the contemporary context to refer to both the colour green and ‘greenery’ in general. There is historical evidence (Kitahara 1997, p.58) to be found in the Japanese –Portuguese dictionary produced by the Portuguese missionaries in 1603, which indicates that the term ‘midori’ was used four hundred

years ago to refer to the new buds and shoots of plants and the young branches of trees. The meaning is, however, even in the historical context, extended metonymically to the green colour which is characteristic of and associated with new verdure. Evidence provided by Nagano (1996, p.46) is in accord with this position. Midori is unique amongst the six ‘basic primary’ colour terms, that is to say the first six to appear in accordance with the Berlin and Kay evolutionary sequence (Corbett and Davies 1997, p.198), in that it is synchronically polysemous. The other five ‘basic primary’ colour terms (namely ‘shiro’, ‘kuro’, ‘aka’, ‘ki-iro’ and ‘ao’) carry a ‘colour sense’ but not an ‘entity sense’ (‘ao’, however, has both denotational and connotational usages). The terms ‘shiro’, ‘kuro’, ‘aka’, ‘ki-iro’ and ‘ao’ are thus monosemous. As for what Corbett and Davies suggest might be termed the ‘basic secondary’ colour terms in Japanese, that is, terms formed with the ‘....-iro’ (‘....-coloured’) suffix (namely ‘cha-iro’, ‘murasaki-iro’, ‘momo-iro’, ‘daidai-iro’ and ‘hai-iro’/‘nezumi-iro’), all are definitely monosemous, carrying only a colour sense and not an entity sense.

Clearly a fundamental issue which faces colour researchers must be the question of just what constitutes a ‘colour term’ (or even ‘word’) in Japanese. Stanlaw (1987, p.110) poses the questions ‘is it a set of spoken phonemes?’ and ‘is it a character or set of characters – that often have a multitude of pronunciations – that are the primary units of analysis?’ As previously mentioned characters and character combinations have ‘on-yomi’ and/or ‘kun-yomi’. If we accept ‘ao-iro’ as a basic term, how do we determine the status of the alternative reading of the same character combination, ‘sei-shoku’? Likewise ‘midori-iro’ and ‘ryoku-shoku’? When such basic questions arise it becomes evident that there are peculiarities in the system of colour nomenclature employed by the Japanese language which were not given consideration by Berlin and Kay when seeking to stipulate criteria in determining basic level colour term status.

Incidentally, it is worth noting that there is also at least one colour term in Japanese which fits all the criteria set out by Berlin and Kay as determinant of basic colour status (viz. salience, its not being subsumed under any other colour term, its being non-referent based (lack of colloquial restrictions), and mono-lexemic status), yet which is not considered basic by Berlin and Kay. This term is ‘kon’ (or ‘kon-iro’), navy blue.

b) Berlin and Kay disregarded the traditional system of colour terms.

McNeill (1972, pp.25-26) levels criticism at Berlin and Kay for not considering all the five traditional colour names which existed in Japan before the development of synthetic dyes.

He contends that a potential shortcoming of the work of Berlin and Kay is the fact that they did not mention that Japan had a traditional system of colour naming for centuries before the advent of synthetic dyes in the 1860s. Uemura & Yamazaki (1943) inform us that the traditional Japanese system of colour coding comprised terms for five colour categories. These were: 'kuro' (black), 'shiro' (white), 'akane' (red; the colour name being derived from a plant, the root of which produced a red dye), 'hanada' (blue; the name being derived from the *hanada* plant) and 'kariyasu' (yellow; the name being derived from the *kariyasu* plant). I would contend, however, that at the time of the Berlin and Kay research, only the terms 'kuro' and 'shiro' had been accepted into standard Japanese and were in common parlance, with the colour terms 'akane' and 'kariyasu' definitely being terms whose heyday, the majority of JNS would have considered, belonged to a former age. Zollinger (1976, p.273) comments on the cultural significance of the terms 'kuro' (black) and 'shiro' (white) to the Japanese, explaining that these have 'cultural relationships to colours in Japanese art, philosophy and religion (particularly Zen Buddhism)'. The cultural significance of 'kuro' and 'shiro' notwithstanding, McNeill (1972, p.26) makes the claim that 'akane', 'hanada' and 'kariyasu', together with 'kuro' and 'shiro', were part of a 'traditional system of colour names that has existed for centuries and is still in use in many parts of Japan'. It is interesting to note, incidentally, that the use of the term 'hanada-iro', meaning 'light blue', persists to this day in the vocabulary of certain individuals. The hues which resulted from the extraction of natural dyes had a characteristic focus and a range of shades which, unlike most of the colour categories in common use today, were uniquely Japanese. An examination of these colours shows that what ancient Japanese classified as 'akane' would be called 'orange' and what they classified as 'hanada' would be called 'turquoise' by contemporary English speakers. In other words, to ancient Japanese turquoise was the representative example of the blue range of hues. Nagano (1996, p.46) implies that, in the contemporary context, 'ao' might embrace a similar range of referents to that traditionally embraced by 'hanada' by stating '...midori usually falls within the area of semantic space covered by ao'. This is a point which was overlooked by Berlin and Kay and which, consequently, represents a shortcoming in their research into the question of basic colour categories in relation to the Japanese language.

The invention of chemical dyes is very recent, historically, dating only from the nineteenth century. It is easy to overlook just how highly disrupting the availability of these dyes has been for traditional colour terminologies which had evolved over many centuries. McNeill (1972, p.31) informs us that, since the 1860s

....not only has there been a great need for new colour terms, but traditional terms have been recruited to denote new, artificially-made colours. The original referents of these colour terms, which were the colours naturally available to the culture, have generally been relegated to peripheral status, and in their place has appeared a vast new set of colours.

In stating this McNeill could be interpreted as, in effect, acknowledging on one hand the validity of the colour terms Berlin and Kay suggest are basic in Japanese in the research which they undertook 100 years after the advent of synthetic dyes, whilst at the same time also suggesting that a truer picture of the situation regarding colour nomenclature, in both historical and contemporary contexts, could have been presented had they taken the traditional system of colour nomenclature into account when seeking to understand the situation surrounding the world of colour nomenclature in Japan and endeavouring to determine the inventory of basic colour terms and their referential ranges for the Japanese language.

c) Berlin and Kay's disregard for the position loanwords hold in the contemporary system of colour nomenclature

As pointed out above, in their advocacy of their universalist position, Berlin and Kay ignored certain aspects of Japanese colour nomenclature which render the premise underlying their definition of basic colour status problematic for this language. This point was made by Uchikawa and Boynton (1987, p.1826) who highlighted an aspect of colour nomenclature which was never considered by Berlin and Kay, namely the role of loanwords in a language. In their research Uchikawa and Boynton demonstrated that there was a colour nomenclature dimension which was very relevant to the Japanese situation, but not relevant to colour researchers in America. This had to do with the role of loanword colour terms. In discussing a colour naming experiment they conducted, they stated:

Because the Japanese language is no longer free of influence from the English language, the subjects used some English colour terms, especially pink, orange and gray, which are now in common use in Japan. Original Japanese colour terms that correspond to English ones, such as *momo* for pink, *daidai* for orange and *hai* for gray, were also

used, but not by all subjects. For example, to name samples in the orange region, three subjects used only *daidai*, two used only orange, and five used both terms indiscriminately, showing that there is a bilingual problem with Japanese subjects of a kind that does not occur for Americans, which complicates the definition of a basic colour term.

Stanlaw (1987, p.5) is another language researcher who points out that the role of foreign loanwords in the Japanese colour vocabulary was not considered by Berlin and Kay when seeking to define 'basic colour terms', despite the fact that in some notable instances the 'foreign' loanwords come more naturally to the JNS than do the native terms (the use of which sounds decidedly contrived or anachronistic). He also notes that this is particularly the case in respect to the terms for pink ('momo-iro') and orange ('daidai-iro'). Evidence is presented by Stanlaw (1987, p.144) that these nativized loanwords enjoy a much higher level of salience than their equivalent native terms (refer Table 2.6). The evidence presented supports the position that the native basic terms 'nezumi-iro' (one native version of 'grey'), 'momo-iro' (pink) and 'daidai-iro' (orange) are among the very least salient names in the Japanese colour vocabulary. Clearly then, in terms of the question of the place of loanwords in Japanese colour nomenclature, it needs to be acknowledged that, in listing the basic Japanese colour terms as 'kuro', 'shiro', 'aka', 'midori', 'ki-iro', 'ao', 'cha-iro', 'murasaki', 'momo-iro', 'daidai-iro' and 'hai-iro'/'nezumi-iro', Berlin and Kay elected to consider only native colour expressions, regardless of the salience, general acceptance and common usage of foreign loanwords.

Research which indicated the comparative levels of salience between certain Japanese native colour terms and their 'equivalent' loanwords was conducted just a decade after Berlin and Kay's defining of basic colour terms and their claims regarding the universality of colour encoding sequences. Iijima, Wenning and Zollinger (1982, pp.248-249) conducted research on three groups of Japanese children living in a Japanese regional town (Yonezawa), the area of Suginami Ward in the metropolis of Tokyo and in Dusseldorf (Germany), requesting informants to categorize Japanese colour terms as either 'absolutely necessary' (sic) or alternatively 'desirable' in terms of their idea of what should constitute a minimum Japanese colour term lexicon. In this research the participants, who were all JNS aged from 12 to 15, were asked to write down a total of not more than twelve colour terms, dividing them into the aforementioned categories as they saw fit. The test was evaluated simply by counting the colour terms listed as being 'absolutely necessary' and those regarded as 'desirable'. The results for the native colour terms 'momo-iro' (pink) and 'daidai-iro' (orange) are

given at Table 2.11, together with the results for the ‘equivalent’ loanwords ‘pinku’ (pink) and ‘orenji-iro’ (orange). Iijima, Wenning and Zollinger did not list figures for the term ‘nezumi-iro’ (grey) which is mentioned as one of the terms for grey considered basic by Berlin and Kay. The results are presented for each category separately as percentages of students who listed the term.

Table 2.11

Salience of traditional colour terms vs. equivalent loanwords for selected colours for three groups of JNS children.

Description of group	‘momo-iro’ (traditional term for ‘pink’)	‘pinku’ (foreign loanword for ‘pink’)	‘dai-dai-iro’ (traditional term for ‘orange’)	‘orenji-iro’ (foreign loanword for ‘orange’)
Yonezawa group ‘absolutely necessary’	zero	2	zero	4
Yonezawa group ‘desirable’	6	18	26	18
Yonezawa group total	6	20	26	22
Tokyo group ‘absolutely necessary’	zero	2	zero	15
Tokyo group ‘desirable’	zero	40	6	25
Tokyo group total	zero	42	6	40
Dusseldorf group ‘absolutely necessary’	zero	6	zero	15
Dusseldorf group ‘desirable’	zero	28	4	43
Dusseldorf group total	zero	34	4	58

The results show a general preference for the loanword terms over the native terms, there being only one instance of a native term (‘daidai-iro’) recording a higher

percentage (albeit only moderately higher) than the ‘equivalent’ loanword (‘orenji-iro’). The preference for the loanword ‘pinku’ over the native expression ‘momo-iro’ was shown to be universal

Further evidence of the salience of loanwords in Japanese colour nomenclature is provided by Stanlaw (1997, p.241), who reports that

Berlin and Kay - necessarily - neglected several crucial aspects of the Japanese color nomenclature system. They failed to examine the pervasive use of loanwords in the Japanese language in general and in the color-term vocabulary in particular.

He further reports (1997, pp.250-251) that

Several English loanword color terms...are highly salient in the minds of Japanese speakers. Pinku, orenji, and guree are used much more frequently than the corresponding Japanese terms momo-iro (PINK), daidai-iro (ORANGE), and nezumi-iro (GREY) which are cited as basic by Berlin and Kay (1969).

The results of a survey reported by Stanlaw (1987, p.140) in which he asked ninety-one JNS of various ages to write down the colour terms they thought were ‘most common and most important in everyday life in Japan’ are given below in Tables 2.12.1 and 2.12.2 in relation to the native and loanword terms for pink, orange and grey.

Table 2.12.1

Frequency of nomination of native colour terms for pink, orange and grey.

Basic colour term (native)	Category	Frequency (out of 91 nominations in total)
momo-iro	pink	4
daidai-iro	orange	4
hai-iro	grey	14
nezumi-iro	grey	5

Table 2.12.2

Frequency of nomination of loanword colour terms for pink, orange and grey.

Loanword colour term	Category	Frequency (out of 91)
pinku	pink	39
orenji	orange	36
guree	grey	11

These results by Stanlaw accord with the earlier findings by Iijima, Wenning and Zollinger which indicate that the loanwords ‘pinku’ and ‘orenji’ are clearly more salient in the minds of JNS than their ‘equivalent’ native expressions.

In Table 2.13 I have reproduced, in decreasing order of saliency for all Stanlaw’s informants (irrespective of a term’s status as ‘native’, ‘basic’ or ‘loanword’), a ranking of selected colour terms. It should be noted that ‘pinku’ and ‘orenji’ appear far higher on the list than their native term equivalents. The situation for the term ‘hai-iro’ is that it proved more salient than the loanword ‘guree’. The other native term for grey, ‘nezumi-iro’, however, pegged in lower on the salience scale than the loanword ‘guree’. The relevant salience (as determined by Stanlaw 1987, p.144) of these expressions and other selected colour terms is:

Table 2.13

Salience of Japanese colour terms as determined by Stanlaw (1987).

Colour term	Salience (%)
shiro (white)	97%
aka (red)	93%
kuro (black)	92%
ao (considered to be 'blue')	91%
ki-iro (yellow)	81%
midori (considered to be 'green')	77%
cha-iro (brown)	60%
murasaki (purple)	50%
pinku (loanword for 'pink')	43%
orenji (loanword for 'orange')	39%
kon (navy blue)	26%
mizu-iro (aqua, light blue)	24%
hai-iro (grey)	15%
guree (loanword for 'grey')	12%
nezumi-iro (grey)	5%
sora-iro (light blue)	5%

The results of his research led Stanlaw to conclude that not only were colour loanwords a feature of the Japanese language, but that certain native terms were being replaced in modern Japanese by these. He states that

It even appears that the Japanese colour lexicon consists of two distinct sets of terms, one of native origin, the other borrowed from English. I suggest that the English loanwords are often replacing native Japanese colour terms, and that they seem to be doing so in reverse order with respect to the Berlin and Kay evolutionary sequence' (1997, p.241).

The evidence provided here suggests strongly that the set of criteria established by Berlin and Kay to determine 'basic colour status' is unsuitable for universal application. Certainly, in terms of the Japanese language, the Berlin and Kay definition is problematic.

Summary of Chapter 2

This chapter offers a general introduction to the Japanese language and its place in the world. It explains the various scripts used in Japanese and the roles they each play in that language.

The enormous complexity of the Japanese system of colour naming is introduced, with reference to both a) the choices available in terms of reading the Chinese character orthography (one deriving from native colour terminology and the

other from imported Chinese readings) and b) the high degree of morphemic variation to which Japanese colour terms are subjected, depending on the linguistic environment in which they are used. The question of the types of morphemic modification Japanese colour terms undergo is dealt with in detail in order to offer non-JNS an insight into the complexity of this aspect of the Japanese language. Following on from this is a report on the difficulties involved in applying Berlin and Kay's definition of 'basic colour term' to Japanese. In particular, the condition for basic colour term status laid down by Berlin and Kay relating to monolexemy is shown to be problematic. In this context the validity of including the term 'midori' but excluding 'kon' from basic colour term status is brought into question. The role played by loanwords in Japanese is likewise shown to be problematic, indeed something which Berlin and Kay ignored when seeking to define basic colour terms. It is further reported that in at least two, possibly three cases, loanword colour terms are more salient than their native equivalents.

CHAPTER 3

History of Colour Nomenclature in Japan

The four oldest colour terms in Japanese and their etymologies

This chapter presents a general historical overview of colour nomenclature and colour research in relation to the Japanese language, with much of the literature reviewed being sourced in that language. It identifies the four oldest colour terms in Japanese and investigates their etymologies. The historical salience of ‘ao’ in the earliest documents written in Japanese is shown to be a socio-linguistic phenomenon which has persisted throughout the centuries to the present day. In this chapter ‘ao’ is identified as being the non-green/blue differentiating Japanese term which is acknowledged by Kay (1975, pp.260-265) and Iijima et al. (1982, p.257), as being a major contributory factor necessitating the revision of the original universal colour term encoding sequence proposed by Berlin and Kay in 1969. ‘Ao’, in other words, was the ‘problematic’ term in Japanese which, together with corresponding terms in other languages (notably native languages of North America and Africa), demanded a composite green/blue ‘grue’ category be established in a revised theory of the universal sequencing of the encodification of colour terms. It is also acknowledged that it is not the case for Japanese that a one-to-one correlation could be identified between ‘ao’ and blue or between ‘midori’ and green.

Research into the etymology of the Japanese term ‘ao’ sheds light on the semantic boundaries it embraced in ancient times, with Nagasaki (1977, p.13) informing us that:

The same colour terms used in ancient times and in later times often underwent changes in the boundaries of their terms of reference. For example, the oldest colour terms in Japanese are ‘shiro’ (‘white’), ‘aka’ (‘red’), ‘kuro’ (‘black’) and ‘ao’ (‘blue’). All of these originally were names determined by the level of brightness, later developing into names which encompassed a certain grouping of colours and finally being used to focus on particular hues deemed representative of the grouping.

In ancient Japan ‘ao’ was used to describe the half-way house, the vague state between brightness and darkness. Later this term took on reference to a particular series

of hues (the blue portion of the spectrum) possibly, it is conjectured by Nagasaki (1977, p.33), ‘because things look cold in half light, and a mental association is made between “ao” and a lack of warmth’. He tells us (1977, p.14) that the term ‘ao’ initially referred to the ill-defined situation of being ‘usugurai’ (darkish/dim), later developing to encompass the grouping of cold colours (‘kanshoku’) and finally being used to refer to ‘fukai midori’, a deep green colour. He reports that it was this very general reference to levels of brightness which determined the earliest recorded usages of colour expressions in the Japanese language and, further, that ‘shiro’ (‘white’), ‘aka’ (‘red’), ‘kuro’ (‘black’) and ‘ao’ (‘blue’) were the only original colour terms existing in the language. Accordingly, each of these terms necessarily extended over quite a broad band of the spectrum. As a consequence the colour of grasses and trees (vegetation in general) and the colours of the sky and sea were all ‘ao’. He further reports that, based on his research into ancient records ‘in the early days of the Japanese language the terms “ki” (yellow) and “midori” (green) did not exist’ (Nagasaki 1977, p.14).

Kitahara (1997, p.63) supports the argument posited by Nagasaki:

Originally the term ‘ao’ was used broadly to express the notion of an indistinct colour in between black and white. It seems it referred to not only blue, green and indigo but also it extended to cover greys as well...The implication for the modern language is that this is the reason why we do not feel strange referring to ‘midori-iro’ as being ‘ao’.

There are several slightly differing explanations as to the etymological derivation of what are universally accepted as being the original four Japanese colour terms. Nagasaki explains that, in a way which parallels the situation in relation to ‘ao’, the term ‘aka’ (‘red’) initially referred to the situation of being ‘akarui’ (bright/noticeable), later developing to encompass the grouping of warm colours (‘danshoku’) and finally being used to refer to a specific range of colours centering on red. A similar explanation for the derivation of the earliest Japanese colour terms is suggested by Kitahara (1997, p.63), who claims:

The word ‘akashi’ is the old term for red. Its etymology derives from the character for bright (a homophone). The word ‘kuroshi’ is the ancient form of the term for black, its etymology deriving from the character for dark (again, a homophone). Similarly the old term for white is ‘shiroshi’, its etymology deriving from the near homophone ‘shirushi’ (which is readily associated with the expression ‘ichijirushii’, meaning ‘conspicuous’ - ‘shirushi’ being thought of as a possible corruption of ‘jirushii’). These basic colour adjectives originally didn’t refer to hue, but rather to the degree of brightness. On this point, whilst the etymology

of 'aoshi' is unknown, it can take its place alongside the other members of the basic grouping as it fits the pattern in terms of its representing a broad expression of an indistinct colour.

Colour researchers in Japan (e.g. Hasegawa 1974, Kobayashi 1974, Nishikawa 1975, Nagasaki 1977, Fukuda 1983, Kirihata 1983, Nakamura 1990, Shibatani 1990, Nagano 1996, Kitahara 1997) are in agreement on the point of the antiquity of the terms 'aka' ('red'), 'shiro' ('white'), 'kuro' ('black') and 'ao' ('blue'). In relation to the derivations of these terms Nagasaki (1977) reports that certain Japanese etymologists claim that the syllables 'a' and 'ka' together refer to 'colourful' ('azayaka') and 'bright' ('akarui'), with 'a' being a common prefix and 'ka' being the second syllable of the word 'akarui'. It is alternatively suggested that the derivation of the word 'aka' could be related to the word 'aku' (to open) with reference being to the beginning of the day. Even today the concept of dawn is described in Japanese using the expression 'yo ake', literally 'the opening up of the night'.

Nagasaki agrees with Kitahara that the colour term 'shiro' probably derived from the idea of the night opening up to the day, and the remarkable ('ichijirushii') difference perceptible as a result of the phenomenon of daybreak - the whitening of the sky.

Nagasaki posits that the term 'kuro' possibly has its origins in the term 'kura' meaning dusk. The kanji for 'kura' 昏 is still used in modern Japanese in the expression 'tasogare' (黄昏) meaning 'twilight', while the word for 'darkness' in modern Japanese is the closely homophonic 'kurai'.

All prominent Japanese colour researchers (Nagasaki 1977, Nakamura 1990, Shibatani 1990, Nagano 1996, Kitahara 1997) agree not only that 'ao' was originally used to describe, in a non-specific way, the dark (or cool) colours in general but also that later this term took on reference to the blue portion of the spectrum. Furthermore, it is acknowledged by all these researchers that the term 'ao' appears in both the ancient chronicles of Japan, the Kojiki (712AD) and the Nihon Shoki (720AD) and that these represent the earliest recordings of this term.

Shibatani (1990) informs us that not only do the earliest extant systematic written records of the Japanese language date back to the eighth century, but that the oldest among them, the Kojiki (Record of Ancient Matters 712 AD), is written exclusively in Chinese characters. Nagasaki (1977, p.33) reports that indeed each of the

four colour terms used in the Kojiki ('aka' 'shiro', 'ao' and 'kuro') did cover a wide range of hues, 'aka' referring essentially to the amount of brightness/light existing, and probably deriving from the expression 'mei-an' (明暗) - the imported Chinese reading (or 'on-yomi') of the characters 'akarui' 明('brightness/light') and 'kurai'

暗('darkness') in combination. The word 'mei-an', in other words, is written using a combination of the Chinese characters for 'akarui' and 'kurai'. The phenomenon of reading Chinese characters (or combinations thereof) according to a dual system of phonology is fundamental to the Japanese language, and an appreciation of its effects is essential to understand how quite different phonological representations (for example, both 'ao-iro' and 'sei-shoku' as readings of 青色) can be used interchangeably (with only sociological constraints applying) as direct references to one and the same colour. An expansion of the 'on-yomi/kunyomi' discourse is presented later in this chapter.

The importance of Chinese characters (kanji) in Japanese in the historical and contemporary contexts

Prior to the advent of a Japanese indigenous alphabet it was only possible to write Japanese using Chinese characters. Indeed this is almost universally the way colour terms are orthographed in modern Japan. As Chinese characters are ideographic, their history and relationship to the Japanese language are highly relevant to Japanese language researchers with an interest in colour nomenclature. Shibatani (1990) reports on the history of Chinese characters in Japanese, stating that it is generally believed that Chinese words and characters were first introduced into Japan during the first century A.D., or probably even before that.

According to the Nihon Shoki or 'Chronicles of Japan' (720 AD), a systematic introduction of the Chinese language occurred around 400 AD, when Korean scholars brought Chinese books to Japan. While Chinese characters and words remained primarily the instruments of recording official documents and of scholarly writing for a long time, they were gradually absorbed into everyday Japanese until, by the end of the Edo period (1603-1867), they had thoroughly penetrated the colloquial language, resulting in the situation where they formed an essential part of written Japanese. Indeed the legacy of this tradition is evident in Japan today, where the notion of the Japanese language existing and operating without Chinese characters would be almost inconceivable. In acknowledging this fact Sapir (1921, p.194, quoted in Takashi 1990,

p.23) commented that ‘...an educated Japanese can hardly frame a single literary sentence without the use of Chinese resources’.

Evidence supporting the usefulness of Chinese characters as a linguistic tool can also be found in relation to the Korean language. Tyson (1994, p.35) reports that both the North Korean and South Korean governments have, for nationalistic reasons, at different times sought to purge their respective versions of the Korean language of kanji (North Korea banning kanji from 1948 to 1966 and South Korea dropping their teaching between 1957 and 1964 and then again between 1970 and 1972). All such policy decisions, however, were subsequently overturned due to the inconvenience which resulted from an absence of kanji. The intrinsic value of kanji and their high level of communicative convenience ensured that, despite government policies aimed at promoting nationalistic sentiment, practical communicative considerations had to be placed ahead of government ideology.

Fewings (1997, p.21) reiterates the sentiment expressed by Takashi (1990) in relation to the indispensability of kanji by stating ‘Kanji in Japan...are omnipresent in writing practice and as such are taught from grade one’.

Researchers such as Unger (1987, p.106) suggest that the influence of Chinese characters on the Japanese language transcends the linguistic level, permeating the entire framework of Japanese society. To quote (1987, p.6):

The Japanese did not merely receive kanji from China: they imported the entire apparatus of Chinese literature, historiography, science, philosophy, religion, government, and art. Classical Chinese was able to serve as a channel of communication for the Japanese elite...not because of their mastery of the writing system *per se*, but because of their assimilation of the ideas Chinese letters brought to them.

There is no evidence to suggest that the influence of the Chinese system of orthography has waned appreciably since it was adopted by the Japanese. On the contrary, according to Takada (1989, p.106) approximately half of the vocabulary of modern Japanese derives from Chinese. Sugito (1989, p.120) quotes figures from a 1961 survey conducted by the National Language Research Institute of Japan which indicate that 41.3% of words in running text and 47.5% of non-repeated words in texts in general derive from Chinese. These findings are supported by researchers such as Shibatani (1992, p.249) who states that the proportion of Sino-Japanese expressions in standard contemporary Japanese dictionaries is 60%. In common parlance, however, such a high proportion of expressions of direct Chinese origin would render the speaker

pompous-sounding. Accordingly, in a typical Japanese conversation such expressions would comprise a lesser percentage of total words spoken, perhaps 24% according to Bowring and Kornicki (1993, p.121).

The study of Chinese characters is not only compulsory in Japanese schools and essential to operate in any field of endeavour in Japan, it is also a popular national pursuit. Takahashi reported in the daily national newspaper the 'Asahi Shinbun' (29th April 1996, p.9) that the number of participants in the Kanji Proficiency Test increases every year, the number being half a million in 1995. He reported also that participants who pass the highest level are able to appreciate and compose classical Chinese writings.

Miller (1967, pp.245-246) was an earlier researcher who espoused the position that the influence the Chinese writing system has had on Japanese has been profound, explaining that, in comparison to loanwords of European origin:

Chinese loanwords extended into deeper, wider levels of influencing the Japanese language, vocabulary, lexicon, syntax, pronunciation...In this way not only have the total dimensions of the Japanese language been expanded by centuries of Chinese loan, but semantic ranges of original Japanese items in the vocabulary have also been significantly extended in many cases, thanks to these contacts with Chinese.

Nakamura (1990, p.9) states that:

The meanings of... characters (for colour terms) in Japanese clearly reflect the historical connection Japanese has with the Chinese language. In ancient China 'ao' was a term used to express 'midori-iro' ('green').

This statement would seem compatible with the theory Nakamura espouses that the structure of the character 'ao' (青) suggests it originally derived from reference to 'the new shoots or leaves of plants/grasses' or alternatively that it described 'the situation of having clear water in a well'. No guess can be meaningfully hazarded, however, as to a date on which the structure of this character (nor the characters for the other original colour terms) was determined. This is something for which there are no written records.

From the earliest days of writing their language, the Japanese were faced with the issue of 'marrying' the imported system of Chinese orthography (and concomitant phonology) with the vernacular. This matter is taken up by Shibatani (1990) who explains that by the time the Manyoshu (Collection of a Myriad Leaves), an anthology

of Japanese verse, was completed in 759AD the Japanese had mastered the use of Chinese characters as a phonetic system and a means of writing Japanese. For example, the Japanese word 'yama' (mountain) could be written phonetically by using a combination of characters, the first with a sound similar to 'ya' (e.g.夜 'evening') and the second with a sound resembling the Japanese phoneme 'ma' (e.g.麻 'hemp') as 夜麻. In other words, what stands for 'mountain' could now be written in two ways. One of these ways used the original Chinese phonological representation (the sound 'san') and its ideographic representation, the character 山. The other way was to choose Chinese characters which read as 'ya' and 'ma', thus fitting the existing Japanese phonetic system, and applying them in the Japanese language as phonetic script divorced from ideographic implications. This practice helped establish a relation between the original character and its Japanese semantic equivalent leading to the practice of assigning a dual reading to Chinese characters: one a Chinese reading ('on-yomi') and the other a Japanese reading ('kun-yomi'). This means that a character such as 山 ('mountain') was read both as 'san', the Chinese reading, and as 'yama', the Japanese reading. The practice of reading Chinese characters both in the Chinese way(s) and the Japanese way(s) is an integral part of the modern Japanese language. Indeed it would be difficult in the extreme to conceive of the Japanese language existing without the possibility of this duality of expression. It results in many concepts being capable of being equally well expressed in either of the dual reading systems, the 'kun-yomi' and the 'on-yomi'. Colour terms in Japanese are no exception.

Japanese linguists such as Shibatani (1990, 1992) acknowledge that not only are Chinese characters, or 'kanji', difficult to write correctly according to the prescribed stroke order, they are also hard to read - if 'read' is defined as being able to vocalize the written word. As already indicated, for most kanji at least two ways of reading must be learned: one the 'on-yomi', the Sino-Japanese reading, and the other the 'kun-yomi', the Japanese native reading. It should be noted, however, that if 'read' is defined as being able to understand the meaning of the written word (with there being no requirement in terms of vocalization), there would be no difficulty involved, due to the ideographic nature of the characters. All this may give the impression that kanji considerably add to the overall complexity of the Japanese language. The indispensability of kanji, however, is highlighted by the inordinate number of homophones in that language which would

be indistinguishable if kanji were not employed as an orthographic tool. Homophones comprise an estimated one-third of the total Japanese lexicon (Nomura, 1989, p.8). The explanation for this feature of Japanese is simple, according to Suzuki (1977, p.417). He states that because in Japanese there are only five vowel sounds and no consonant clusters, only very limited possibilities exist in terms of phonetic combinations, this situation resulting in a total of a mere 102 possible syllables (as opposed to at least 3,500 for English). Fewings (1997, p.23) concludes that, consequently, distinguishing homophones relies heavily on kanji whose graphic-semantic effect is not found in the native (phonographic) scripts. Simply put, 'kanji reduce ambiguity' (Nishiwaki, 1988, p.177).

Having said this, a feature characteristic of kanji is that, on occasion, more than one character can be used to orthographically represent a particular verbal expression. To put it another way, one reading can be shared by two (or sometimes more) characters. The situation is different from that in relation to the numerous homophones (such as 'chute' and 'shoot') which exist in English, as the variant orthographies must be either synonymous or at least very close in meaning to allow the reading to be shared. For example the term 'ao' is usually transcribed as 青, but it can also be transcribed as 蒼. This is particularly the case in historical or other 'special' contexts, such as poetic or literary contexts. The latter character refers to a somewhat paler shade than the former. For 'midori' there are also two characters, 緑, which is the usual contemporary orthography, and 翠 (again this is more commonly encountered in a historical or other 'special' context). The traditional lack of clear distinction between the blue and green portions of the spectrum, or more accurately, between the expressions 'ao' and 'midori', is particularly clearly evidenced by the existence of the character 碧 which Fukuda (1983, p.122) tells us 'had to refer to "ao-midori" (turquoise) because it had two possible kun-yomi, being able to be read as both "ao" and "midori"'. The point is clearly made, however, that the character 碧 ('ao'/'midori') in fact is rarely used unless combined with another character - often the character 'kon' or navy blue (紺碧) - to give a clearer indication of the colour being referred to than would otherwise be the case. This situation, where a character has a duality of readings where both have other possible orthographies which are understood as being not very closely

related (in the contemporary context), is rare indeed in Japanese. This is evidence of the fact that the relationship between the terms 'ao' and 'midori' is an unusual one as far as the Japanese language is concerned.

Development of the use of colour terms in Japanese: the historical basis for the interplay between 'ao' and 'midori'

An appreciation of the relationship between the Chinese and Japanese languages, as exemplified through the shared system of written characters, behoves the researcher to investigate the changes that have occurred in the meaning and usage of the characters 'ao' and 'midori' in their native home (China) and the way these semantic changes have been reflected in the use of these characters in their adopted home (Japan). Evidence is provided by Nakamura (1990, p.9) that the meaning of the characters 'ao' and 'midori' in modern China has diverged from that which existed in ancient times and that the ancient usage of colour terms in China is reflected in early examples of written Japanese. In reference to the appearance of the characters 'ao' and 'midori' in the classical 11th century Japanese novel *Genji no Monogatari* (Tale of the Genji – see also Kitahara 1997, p.60) Nakamura reports (1990, p.10) that:

What is really fascinating... is that in *Genji no Monogatari* a comparison of the colour of water and the colour of the sky is made, with the sky being referred to as 'midori'. Subsequent to the appearance of this classical Japanese literary work, the meaning of the character 青 ('ao') in Chinese began to increasingly take on the meaning 'ao-iro' (i.e. the colour blue).

From this we see evidence of the need alluded to by Nakamura, to bear certain factors in mind when considering the semantic boundaries of colour term characters which are common between languages in a shared historical context. Nakamura (1990, pp.1-9) points out the fact that in China one colour term could be used to refer to a very considerable range of hues and that this range, in turn, was something which varied, depending on the historical era involved. Furthermore she makes the point that the histories of Chinese and Japanese developed in such a way that things which were understood in an abstract context in the Soka period of Chinese history (the Jomon period of Japanese history, before the start of the first millennium AD) came to be understood in a more literal sense - to describe reality more accurately - in the Zuitou period (the Yamato period in Japan, the 7th century AD). Accordingly a measure of 'flexibility' in terms of interpreting the meanings and semantic boundaries of colour terms in the historical context assists in appreciating the legacy of this in the

contemporary context. In other words, the colour researcher should be prepared to give consideration to the idea that colour terms which were never possessive of hard and fast semantic boundaries in the past may still, today, have somewhat unclear semantic boundaries although these boundaries may have changed from those of ancient times.

Nagasaki (1977, p.34) supports this position and claims there is irrefutable evidence that in the ancient period of Japanese history, from pre-historic times through to the Asuka period (early 7th century), the concept people had of colour was simple and unsophisticated ('tanjun' and 'soboku'), there being no need for detailed classification according to hue. He further suggests that there are some present day researchers who, judging by the number of colour terms available at the time, steadfastly claim that the people of ancient times were not able 'to describe even simple, basic colours'. Nagasaki, however, disagrees with this contention, citing the fact that 'even modern day man, from time to time, uses general expressions like "umi ga ao" (the sea is "ao") and "konoha ga ao" (the leaves of trees are "ao")'. By doing so he makes the point that the 'ao' of the sea and the 'ao' of the leaves can, while described with a single colour term, be cognized as being quite distinct colours. His assertion is that the fact that people in very ancient times used only a small number of terms was because there was no practical need to distinguish colours to any level of detail and the degree of distinction they made (lexically) was quite sufficient for their needs. He states (1997, p.34) that 'We should always bear in mind the fact that the people of ancient times were not so concerned with delicate colour differences, but rather, that their attention was taken by the overall impact of the terms they used'.

The earliest extant record of the use of colour terms in Japanese is found in the Kojiki (712 AD). Nagasaki (1977, p.32) reports that, according to the myths of the Kojiki, the world where the gods work was assumed to be made up of the 'High Fields of Heaven' 高天原 (Taka no Amahara), the 'middle level country' 中津国 (Nakatsu no Kuni) and the 'lower level country' 下津国 (Shimotsu no Kuni). The 'High Fields of Heaven' are described as being lofty, wide open spaces. This world is described as being a bright, pure place, a world symbolized by the colours 'aka' and 'shiro'. The 'middle level country' is at a level lower than the 'High Fields of Heaven' and is referred to as the 'plain of plentiful reeds'. As the name suggests, reeds grew in profusion there, near the shore. It was considered to be a place on the Earth's surface where 'aoao to shita' (verdant) mountains spread out in front of one - the place where

the wild god of nature, who controlled the rains and winds, resided and where the 'mountains, rivers, trees and grasses' were to be found. It was a world symbolized by the colour 'ao'. Lower down again is the 'lower level country', the land of the dead and the spirit world. This world is symbolized by the colour black.

From the time of the appearance the Kojiki onwards the use of 'ao' in Japanese literary life is well documented. Soon after the appearance of the Kojiki the Japanese are recorded as having engaged in poetry writing.

An example of a waka, or traditional poem from the Nara period of Japanese history (8th century AD), is quoted by Kobayashi (1974, p.830). The poem describes the scenery at Nara, the then capital of the country, thus: 青丹よし奈良の都 'Ao-ni yoshi Nara no miyako' (The 'ao-ni' soil of the capital, Nara). It is explained that the expression 'ao-ni' referred to the 'blue-black earth' of the capital, Nara, which is being contrasted with the pale pink of the 'yaezakura' or double cherry-blossoms. The description 翠したたる木々の青さ 'Midori shitataru kigi no ao-sa' (The 'ao-sa' of the trees dressed in 'midori') is employed in reference to the description of the trees. 'Ao-sa' was a reference to the verdure of the foliage of the trees.

Another facet of life in which it is possible to identify the use of colour terms in eighth century Japan involved the world of facial paints and cosmetics. Fukuda (1983, p.83) explains that 'A large proportion of traditional colour terms derive from dyes or facial paints'. While 'ao' is one of the four oldest colour terms in Japanese and is used in the Kojiki to describe the 'aoao toshita' verdure of the mountains found in the 'middle level country' of the gods, by the middle of the Nara age (mid 8th century) this term was to be found used in combination with the characters 'midori', 'kon', 'sora', 'kin' and 'sou' in relation to certain cosmetics. Nagasaki (1977, p.42) reports that the face paints used as cosmetics in China since ancient times were called 'tansei' 丹青 and 'seiou' 青黄 and it is explained that 'the terms 丹 (tan/ni), 青 (sei/ao) and 黄 (ou/ki) were used to represent all other colours.

Nagasaki lists as the names of artistic cosmetic paints known to the Japanese in the 天平 Tenpei age (the period from 729 – 743 in the Nara era) as

1. the red grouping: 朱砂(shusha) 鉛丹(entan) and 烟子(enji),

2. the brown grouping: 赤者 (sekisha) 紫土 (shido) and 堇土 (kindo)
3. the yellow grouping: 雌黄 (shiou) 同黄 (douou) and 雄黄 (yuuou)
4. the green grouping: 緑青 (rokushou), and finally
5. the blue grouping: 紺青 (konjou) and 青黛 (seidai)

Two points should be noted in relation to this information. Firstly, what Nagasaki categorizes as ‘the blue grouping’ contains two colour terms, both of which contain the character ‘ao’ 青 (the ‘jou’ part of ‘konjou’ 紺青 and the ‘sei’ part of ‘seidai’ 青黛 are both written as the character ‘ao’ 青, ‘jou’ and ‘sei’ being variant ‘on-yomi’ of the character). Secondly, the same ‘ao’ character appears in combination with ‘midori’ in the green grouping. This is perhaps the earliest usage of the character ‘midori’ in Japanese. Under the single heading ‘rokushou’ (‘green-blue’) there are 2 colour terms mentioned. They are: 扁青 ‘hensei’ (‘sei’ again being the character ‘ao’) and 石緑 ‘sekiryoku’, (peacock stone – the ‘ryoku’ part being orthographed using the character ‘midori’). Nagasaki suggests that the reason for the name ‘sekiryoku’ (written with characters meaning ‘stone’ and ‘midori’) is because it was produced from the stone called ‘kujaku-seki’ (peacock-stone or malachite), the chemical composition of which is copper-hydroxide and copper carbonate. When the ore is rich in both these components it becomes an indigo copper ore which is 紺青 ‘konjou’ (or ‘Prussian blue’). In other words, depending on its chemical composition it could produce either a 紺青 (‘konjou’ - that is 青 ‘ao’) or a 緑青 (‘rokushou’ [‘midori ao’] - that is 緑 ‘midori’) colour. What is of significance in relation to the colour terminology used to describe peacock-stone (malachite) is that the character ‘midori’ was used as a partial descriptor in the middle part of the eighth century, soon after the first examples of Japanese writing were produced.

As mentioned above the blue grouping contains 2 headings, 紺青 ‘konjou’ and 青黛 ‘seidai’. Nagasaki reports (1977, p.53) that ‘the rock from which the colour “konjou” was extracted included the same chemical components (copper hydroxide and

copper carbonate) as that from which “rokushou” (a colour listed under the green grouping) was produced, but that the proportion of copper carbonate was greater’ and adds that the English name for this mineral is Azurite. Under the name ‘konjou’ we find reference made to three colour terms, ‘kinsei’ 金青, ‘kuusei’ 空青 and ‘sousei’ 曾青, all of which have the character ‘ao’ (read as ‘sei’) as the latter part of the compound colour expression. These are terms which appear in the first pharmaceutical publication in Japan, a Chinese herbal book called the ‘Honzo Wamyō’, in 918AD. Thereafter, in the year 935AD, the terms ‘kuusei’ 空青 and ‘sousei’ 曾青 are found in the ‘Wamyō Ruijushō’, a dictionary for Japanese and Chinese names of things, and are described in this dictionary as being the same colour. Under the name 青黛 ‘seidai’ there are 3 colour terms mentioned, 青代 ‘seidai’, (the ‘sei’ part is orthographed with the character ‘ao’) 藍花 ‘aibana’ and てん花 ‘tenka’. These were described as being, amongst plant-based colours, relatively able to maintain their colour in sunlight. Nagasaki (1977, p.54) suggests that ‘these colours would be described in English as “indigo” and were used as an item of make-up along with “oshiro” (white face powder) and “beni” (red lipstick)’. From the fact that the character ‘ao’ (sometimes phonologically rendered as ‘sei’) appears 8 times in relation to these colours whereas ‘midori’ appears only twice (of which one occurrence is in combination with ‘ao’), it can be surmised that ‘ao’ was a more salient expression even in the earliest period of written Japanese history.

Further evidence of the high level of salience enjoyed by the term ‘ao’ in ancient times is provided by the first medical book produced in Japan. This appeared during the Heian period (in the year 984 AD) and is known as the ‘Ishinbo’. It was a work that quoted from 80 Chinese medical books and it not only dealt with medical treatments, it also covered such topics as medicinal herbs, health care, diet and living conditions. In this book the Japanese name 安乎仁 ‘ao-ni’ was used to describe the colour 緑青 ‘rokushou’ (the term used to describe the name of the green grouping of face paint colours used in the Tenpei age in the Nara period). From ancient times this term ‘ao’ referred to ‘midori tinged with ao’ (Nagasaki 1977, p.51). In other words, the custom of accepting ‘ao’ as an umbrella term which, under certain circumstances, encompassed ‘midori’ is one of a long established linguistic tradition.

Whereas from the earliest days of colour terminology in Japan ‘ao’ was evidently more salient than ‘midori’, both terms are to be found listed in what Nakamura refers to as the ‘oldest documented literature devoted to the question of colour names in Japan’. This is a work called the ‘Enkishiki’ and it was written over the 40 years between 927 and 967AD. Fukuda (1983, p.82) describes the Enkishiki as follows

The Enkishiki was a record of all the traditional colour terms of Japan, compiled in the 10th century under the reign of the Emperor Daigo...through this work we can glean a wealth of information in relation to the classical use of colour terms.

In this literary work reference is made to the terms ‘aka’, ‘ao’, ‘murasaki’, ‘ki’, ‘midori’ and ‘cha’. It is interesting to note, however, that there is not agreement amongst Japanese colour researchers as to the question of the appearance, or otherwise, in this work of terms representing composite colours. Fukuda (1983, p.122) states that ‘“ao-midori” is the only composite colour term to be found, there being no mention of terms such as “ki-midori” or “aka-murasaki” ‘ while Nakamura (1990, p.9) asserts that at least the term ‘kou-tan’ (yellow-red) is also to be found. Looking at how the terms ‘ao’ and ‘midori’ are used in this work we find examples which indicate the strength of the colour being described, e.g. ‘ao-jiro-tochi’ (or ‘sei-haku-shou’, the colour of horse chestnut trees), ‘fuka-midori’ (dark green), ‘naka-midori’ (medium green) and ‘asa-midori’ (light green).

In relation to the colours listed in the ‘Enkishiki’, Murakami (1983) informs us that, judging from the materials used to make the colour ‘ai’ (an indistinct bluey-green colour which should in fact have been classified as being ‘midori-iro’, yet it was classified in the ‘ao’ category. From this and other information provided in the Enkishiki we are able to deduce two things: firstly that the relationship between ‘ao’ and ‘midori’ was quite an intricate one and secondly, that while a distinction was made between these terms, colours which could be classified under either nomenclature tended to come under the more general ‘ao’ umbrella. This is not to say that ‘midori’ was not used as a colour term, as ‘midori’ is described in the ‘Gogyosetsu’ (an ancient Chinese book of thought and philosophy) as being the colour of young leaves (‘wakaba-iro’) with a strong yellow tinge. In other words, just before the turn of the first millennium there is evidence that ‘ao’ and ‘midori’, while being treated as separate items, were not clearly distinguished, ‘ao’ being considered generally a darker colour and midori being thought of as being lighter, on the yellow side.

The closeness of the relationship between ‘ao’ and ‘midori’ in the historical context is highlighted by Nagasaki (1977, p.76), who reports that ‘Often, among the colour terms used to describe green tones you will find the term “ao” being used. It refers to a dark midori colour with an “ao” flavour to it. It is not distinguished from midori’.

Evidence that this situation has been carried over into the contemporary context is provided by Wierzbicka (1996, p.312) who notes that ‘when there is no need for contrast, *aoi* is used to cover many “greens” (as well as all “blues”)

Nakamura (1990, p.1) reports that the use of ‘ao’ specifically as a colour term dates from the closing years of the 10th century and the appearance of *Genji no Monogatari* (‘The Tale of Genji’), the oldest extant novel written in Japanese. ‘Ao’, she explains, originally covered a range of hues including ‘ao-midori’ (turquoise), ‘asa negi-iro’ (light onion leaf colour), ‘ai-iro’ (a dull darkish blue) and ‘hanada-iro’ (a dull lightish blue). Hanada-iro is also discussed by Nagasaki (1977, p.104), who points out that in ancient times ‘hanada’ was a term used to describe a particular kind of ‘ao’, adding that it was associated with the notion of a ‘change of heart’ (interestingly, again there is evidence of this legacy having been inherited by the modern language, with Wierzbicka (1996, p.312) suggesting the existence of ‘a link between aoi-ness and a possibility of change’). This was because the colour which was derived from the dye obtained from the flower of the ‘tsukikusa’ (spiderwort; *commelina communis*) plant was susceptible to change in sunlight or if allowed to get wet. It was also associated with the notion of being fickle. It would appear that at the time *Genji no Monogatari* was written the attention of the people of Japan was taken by such mundane considerations as the change in the colour of the dye derived from the spiderwort flower!

The modern day usage of the term ‘ao’ was still not in evidence at the time of the appearance of *Genji no Monogatari* in Japan. Whereas at the present time the sky is thought of as being prototypically ‘ao’ (see Chapter 5), it would appear that this was not always the case. Indeed, the term ‘ao’ was not originally associated with the colour of the sky. In the index of the *Nihon Bungaku Shikisai Yougo Shuusei* (Collection of Colour Terms in Japanese Literature, Middle Ages Volume) Ihara (1977, p.657 and pp.664-665) does not include the items ‘the sky’ (‘sora’) or ‘evergreen trees’ (‘tokiwagi’) under the classification ‘ao’ but rather these are to be found under the heading ‘midori’. It was only in later times, Nagasaki reports (1977, p.104), that ‘ao’

became associated with the colour of the sky 蒼天 ('soten') and, by extension, the concepts of profundity and depth 深遠 ('shin'en') and permanence/eternity 悠久 ('yuukyuu'). It was through this that an association with the concepts of knowledge and philosophy was born. In this connection Nagasaki informs us that the inexperience indicated by the term 'ao' in the expressions 'ao-nisai' (a naive person, someone who is wet behind the ears, a greenhorn) and 'ao-samurai' (a warrior who has not known battle) should be thought of in terms of the 'ao' colour of ancient times (i.e. a light 'ao-midori' colour associated with young foliage and which connotes a sense of immaturity) and not the more recent understanding of 'ao' as the prototypical colour of the sky.

A look at Ihara's 1997 study of the use of colour terms in Japanese literature in the Middle Ages provides some interesting insights into the use of the term 'ao' at that time. His work lists 'birds' under the classification 'ao' and the item 'duck's feathers' is found in the prose he quotes. The typical duck, the Mallard, has a green head and neck - the male of the species is called a 'greenhead' in English (Kenkyusha 2003) - with a white ring 'collar' below which there are brown feathers on the body (refer to Appendix 4.2). Accordingly, Nakamura (1990, p.8) suggests that we must question whether or not the term 'ao' as listed by Ihara in this context has the same field of reference as that of the colour descriptor in the term 'ao bane' ('ao' feathers) found in *Genji no Monogatari*, where the colour reference is thought to be in the blue part of the spectrum. Whether it has or not, it would appear that the literary use of colour terms in the Middle Ages provides the historical basis for the description of the green of the male Mallard's head using the term 'ao'. This is a practice which persists to this very day, despite the fact that no contemporary JNS would describe the green colour of the Mallard as 'ao' in common parlance, nor indeed would they think of it in terms of its being 'ao'. However, when presented with the expression 'kubi no aoi magamo' (the 'ao-headed' duck) in an educational or scientific context (such as an encyclopaedia, for example) its usage goes unquestioned.

There are other referents also which display variance between the current usage of the term 'ao' and its historical usage. Ihara lists mountains ('yama') under the classification 'midori', something which Nakamura (1990, p.8) states should be considered as a matter of course (describing its being classified that way as 'nothing particularly remarkable'), though she notes that this referent is described only with the term 'ao' in *Genji no Monogatari*. In this early 11th century novel there are 2 references

to ‘the midori of pine trees’ (although no reference to pine trees themselves being ‘midori’). Ihara lists ‘pine trees’ under both the ‘ao’ and ‘midori’ classifications, noting the use of ‘ao’ is restricted to poetry and verse only. In reference to the earliest period of Japanese literature, therefore, Nakamura (1990, p.8) states that ‘It would appear that the colour of pine trees was variously described as being “ao” and “midori” ‘.

Prominence of ‘ao’ over ‘midori’ in Genji no Monogatari (The Tale of Genji)

The prominence of ‘ao’ as a descriptive term used in the eighth century world of literature (in the Kojiki and in waka poetry), as well as its salience (albeit in combination with other characters) in relation to the colour terms used for cosmetics at that time, has already been referred to. This prominence proved itself to be a persistent feature of Japanese colour nomenclature, featuring again in the 11th century classical work Genji no Monogatari.

The following table compares the number of instantiations of ‘ao’ found in Genji no Monogatari with the number for ‘midori’, classifying the occurrences according to the referential categories suggested by Nakamura (1990, p.6).

Table No. 3.1

Comparison of the number of occurrences on ‘ao’ and ‘midori’ in Genji no Monogatari, by referents

Category	No of occasions of usage of ‘ao’	No of occasions of usage of ‘midori’
colour reference for paper	7	4
colour reference for clothes and accessories	25	6
nature	13	4
facial colour, complexion	9	zero
horses (it is suggested this usage is an abstract one)	2	zero
other	2	zero
total	58	14

The usage of ‘ao’ as a descriptor in the category ‘nature’ established by Nakamura is clearly more common than is the case for ‘midori’. It is interesting to note also that ‘ao’ is used in contemporary Japanese to describe the facial colour or complexion of someone who is unwell. Likewise it is interesting to note that the term

'ao-uma' is still listed in modern Japanese dictionaries in reference to 'bluish dark horses' (Kenkyusha 2003).

Nakamura suggests that whereas 'midori', when used in relation to the categories 'paper' or 'clothes and accessories' can be thought of as being a reference to the colour green, it should not be presumed that the reference is necessarily denotational when it is used in relation to items classified under the heading 'nature'. When it is used in this way the reference may be not to colour as such, but rather to an entity - trees and foliage ('greenery' in English).

An interesting suggestion by Nakamura is that, in some instances the choice of 'ao' or 'midori' by Murasaki Shikibu, the author of *Genji no Monogatari*, could well reflect nothing more than the 'frame of mind' or 'mood' of the writer at the time of writing and that the choice of descriptor was something that could be swayed by factors in nature such as the season or amount of natural light available at the time of description. She states that:

When grass and trees (or vegetation in general) are alternatively referred to as 'ao' and 'midori', the speaker transcends the situation where reference is necessarily made to a colour as such. She employs certain elements of literary licence. (Nakamura 1990, p.7)

The category of 'nature' in Table 3.1 is thought of by Nakamura as essentially referring to foliage and plants - and by extension things appearing green as a result of being covered in foliage (such as tree groves, branches, ornamental gardens or mountains). The considerable 'crossover' between the usage of the terms 'ao' and 'midori' in the context of Nakamura's 'natural' category in relation to *Genji no Monogatari* is evidenced by the information given in Table 3.2.

Table 3.2

‘Ao’ and ‘midori’ referents found in Genji no Monogatari categorized under the heading ‘nature’ by Nakamura

‘Nature’ referents described using the term ‘ao’	tree branches
	grasses and groundcovers
	young grass
	shinobu (the hare-foot fern)
	kazura (vines/creepers/climbers)
	lotus leaves
	mountains
	feathers
	ornamental courtyard gardens
	lotus
‘Nature’ referents described using the term ‘midori’	evergreen trees
	the sky
	chrysanthemum leaves
	groves of trees

It has already been suggested that seasonal changes could have played a role in the choice of colour terminology (‘ao’ vs ‘midori’) recorded in Genji no Monogatari. A study of this work revealed that there was a total of 17 references to the terms ‘ao’ and ‘midori’ in relation to the various seasons, each of these being included in Nakamura’s classification ‘nature’. These have been listed in Tables 3.3 and 3.4 below.

Table 3.3**References to the terms ‘ao’ and ‘midori’ in Genji no Monogatari, by season.**

Referents described using ‘ao’	spring	summer	autumn	winter	total
branches			1		1
various small plants, new plant growth, grasses, creepers, lotus leaves		6			6
mountains		1	1		2
feathers			1		1
ornamental front gardens		2			2
lotuses		1			1
total	zero	10	3	zero	13

Table 3.4**References to the term ‘midori’ in Genji no Monogatari, by season.**

Referents described using ‘midori’	spring	summer	autumn	winter	total
evergreen trees	1				1
the sky		1			1
chrysanthemum leaves			1		1
groves of trees		1			1
total	1	2	1	zero	4

It is evident from the information presented in Tables 3.3 and 3.4 that in Genji no Monogatari ‘ao’ was more commonly used than ‘midori’ (13 vs 4 instantiations) and that there is a concentration of usages of ‘ao’ in relation to summer. Maeda (1983) suggests that ‘ao’ has, since ancient times, referred to the dark green of mature vegetation in summer, whereas ‘midori’ has been used in reference to yellower, new foliage (this position is supported by Nagasaki 1977, p.76). She goes on to say (quoted in Nakamura 1990, p.9) that ‘it would appear that the Japanese people didn’t have a great concern for the actual hue as such, preferring to use “ao” for things which had an ephemeral quality about them’. This position is similar to that taken by Satake (1979) who researched examples of the use of ‘ao’ and ‘midori’ in the Kojiki and in Genji no Monogatari. Satake notes that throughout these works the verses which feature the term ‘midori’ largely restrict its use to an entity sense, using it in reference to vegetation and the new greenery of spring and summer. Satake (quoted in Nakamura 1990, p.9) states that ‘We can surmise then that “midori” was not at that stage being used freely as a reference to colour’. It is suggested by Nakamura that by the time that Genji no Monogatari was written ‘midori’ had started moving away from being a reference to plants as such and had started to be used as a colour term in its own right. As evidence of this she states that of the 14 instantiations of ‘midori’ in the novel, eight were clearly colour references (seven examples of ‘asa-midori’ [light green] and one of ‘fuka-midori’ [dark green]). By contrast, the usages of ‘ao’ in Genji no Monogatari are many and varied, suggesting that its wide use rendered it a more salient term.

Table 3.5 lists, for ‘ao’, the lexical items found in *Genji no Monogatari* and number of instantiations of each, together with approximate English translations and the orthographic representations involving Chinese characters.

Table 3.5**Instantiations of ‘ao’ in Genjo no Monogatari**

Term	No of occasions of usage	English translation	Chinese character orthography
ao-iro	8	‘ao’ coloured	青色
ao-shi	6	blue	青し
aomi-idezu	1	description of grass/plants/weeds new shoots	青み出づ
aomi-yasesu	3	to grow thin and sickly	青み瘦せず
aomi-wataru	2	to cross into a blue colour (uncertain)	青み渡る
aomu	4	to go pale/take on a sickly appearance	青む
aoyakanari	5	uncertain	青やかなり
ao-uma	2	a greyish horse	白(あを)馬
yase-aomu	1	to grow thin and pale	瘦せ青む
ao-kuchiba (dead leaves)	1	dropped deciduous leaves	青朽ち葉
ao-suri	2	uncertain	青摺り
ao-chi	2	dark soil	青地
ao-tan	1	bluey-red	青丹
ao-don	14	dim light	青鈍
ao-ba	2	fresh, verdant leaves, new growth on plants	青葉
ao-hane	1	‘ao’ feathers	青羽
ao-yanagi	3	a freshly verdant willow tree (also in a metaphorical sense in reference to a young girl)	青柳

Japanese perspectives on the relevant levels of linguistic and cultural salience of

‘ao’ (blue) and ‘midori’ (green) in the West

Whilst evidence presented so far indicates that ‘ao’ was historically more significant than the newer term ‘midori’ (which I have indicated was originally not a colour term as such but a reference to vegetation [specifically new foliage]), certain Japanese colour researchers (e.g. Uemura and Yamazaki, 1943; Kobayashi, 1974 and Nagasaki, 1977) posit that, relative to other colour terms, ‘ao’ and ‘midori’ were both terms which were low in terms of salience. Nagasaki (1977, p.12) argues that this is something common to both the Occidental and Oriental cultural traditions:

Both in ancient and modern times in both the East and the West the colour red has always been prominent. In the caves at Altamira the wonderful yet primitive art on the cave walls and ceiling...incorporates red, yellow, brown and black, but strangely, not ‘ao’ or ‘midori’...We must acknowledge the possibility that ‘ao’ and ‘midori’ were used but the colours have been lost as a result of fading over the ages...and also the possibility that the lack of ‘ao’ and ‘midori’ could have been due to the lack of availability of such colouring materials or indeed because reds were more prominent to primitive man than other colours.

In the Western culture it has been noted that poems written in the age of Homer make reference to red and yellow but they fail to refer to the ‘green’ of trees and the ‘blue’ of the sky and similarly that in the hymns of praise of the Old Testament there is no mention made of the ‘blueness of the sky’. Accordingly, Nagasaki concludes that the appreciation Westerners currently have of colours is not something that was shared by our forebears. He contends that it is likely that awareness in relation to ‘midori’ and ‘ao’ developed only after an awareness of the colours in the red portion of the spectrum. This isn’t to say, however, that people of ancient times couldn’t perceive, or distinguish between, the cool colours.

In terms of more recent times, Kobayashi (1974, p.9) offers comment on American history from the Japanese perspective, explaining that when the USA was being opened up settlers went into the wilderness and planted saplings, revisiting the area only when the trees were growing in a way described by the adverbial phrase ‘midori aoku’ (fresh and green). He refers to trees and vegetation using the term ‘midori’: ‘mizu ga ate, midori ga sodatsu’ (there was water there and plants could be grown) and believes that Americans appreciate ‘midori’ (green/greenery) and find it more culturally salient than Japanese do. He offers evidence of this by suggesting that when one looks down on Los Angeles from the aeroplane one sees a surprising amount of ‘midori’, despite the fact that that city is built in a desert area where it hardly rains at

all throughout the year. Plants, he explains to his Japanese reading audience, are kept alive by reticulation systems. He states what is obvious for his audience when he says that the situation in Japan, by contrast, is that 'midori' simply appears naturally and without any encouragement whatsoever. He suggests that in Japan water and trees ('mizu' and 'midori') are simply natural attributes of the landscape and that, because there is no need to work for them, the colour 'midori' doesn't have the same acute significance for Japanese as it does for Americans. He suggests that, whereas for the early American colonists the colour green was significant because it represented hope for successful crop harvests, the situation is quite different for the Japanese in that when their plains take on a mantle of green 'ao ao toshita midori' and the mountains and fields take on a crimson mantle, it is the red colour which is taken to be an expression of the prospect of the provision of food needed to sustain life. He contends (1974, p.110) that 'Because Japan has been bountifully endowed with "midori", the Japanese tend to be a race which pays scant attention to this colour'.

Fukuda (1983, p.114) expresses a similar sentiment in relation to other people whose natural environment includes luxuriant greenery in abundance, stating that 'People in the tropical countries near the equator most likely would not have a particular interest in this colour (midori)'.

A Japanese perspective on the question of colour salience in Japan in a historical context

In Japan the lack of cultural significance placed on the colour 'midori' is also evident in the world of art. Kobayashi (1974, p.90) reports that 'midori' was hardly used in the traditional ukiyoe paintings of the 18th century and suggests that the most likely reason was that it was thought of as an unfashionable colour. He suggests that, in a similar way, the fact that 'midori' has not been passed on to the present day Japanese as a colour of traditional significance has to do with the fact that it wasn't valued much in the colour culture of the past. The disinclination of the most famous ukiyoe artist, Utamaro, to use 'ao' or 'midori' in his traditional colour prints of everyday life in the Japan of the Edo period has been researched by Kobayashi who found that midori represented only 3.2% of the overall colours used, 'ao-midori' represented 1% and 'ao' represented only 2.8%. There was clearly a strong preference for the use of orange (32.2%), red (23.5%) and yellow (17.2%), with subdued tones of these colours being the order of the day. He reports that 'bright, showy colours were used only as accent colours'. Further evidence supporting the suggestion that the Japanese are somewhat

indifferent to the colours ‘ao’ and ‘midori’ is provided by the work of Japanese colour scholar Rokuro Uemura, former Professor of Kyoto Kogei University. He lists the colours he considers to be representative of the major periods of Japanese history (in Kobayashi 1974, p.121) according to Table 3.6:

Table 3.6

Colours considered representative of the major periods of Japanese history

Period of Japanese history	representative colour	rationale
The ancient period (up to 7 th century)	scarlet 緋	signifies the red of daybreak and the dawn of culture
Tempei (early 8 th century)	white 白	unpretentious
Nara 724-794AD	red 丹	A sense of life and new excitement
Heian 794-1191AD	purple 紫	Elegant and appropriate for nobles
Kamakura 1191-1334AD	navy blue 紺	The colour of bushi or warriors
Muromachi 1334-1575AD	gold 金	The Temple of the Golden Pavilion (Kinkakuji) was built
Edo 1603-1868AD	brown 茶	A symbol of quiet taste and elegant simplicity (‘wabi’ and ‘sabi’) characteristic of this period
Meiji 1868-1912	red 赤	The vitality of the ‘prosperous country, strong military’ policy
Showa 1926-1988	yellow 黄	Japan accused of being jaundiced in its view of the world

The fact that neither ‘ao’ (blue) nor ‘midori’ (green) was selected supports the argument that neither of these colours was particularly highly culturally salient for the Japanese. Of these two colours it has already been argued that, historically, ‘midori’ has been the less culturally salient. Further evidence of this is provided by researchers such as Nagasaki (1977) and Kirihata (1983) who inform us that in 603 AD the Empress Suiko decreed that, in order to assist in maintaining social order, the colour of clothes

people wore should reflect their level of standing in society. The ranking of colours, from the highest level of status to the lowest, was 'murasaki' (purple), 'ao' , 'aka' (red) 'ki' (yellow), 'shiro' (white) and 'kuro' (black) with relatively few privileged individuals allowed to wear murasaki or ao. It is of interest that, with the advent of aniline dyes in the 1860s and the diffusion of the first such dye, mauve, across the world at that time, Garfield (2000, p.88) noted that 'Culturally it [mauve] can be quite awkward globally. People in Japan won't wear it because they associate it exclusively with royalty'. This observation suggests that the association a cultural group makes with a particular colour can be something which relates to a sometimes quite lengthy cultural history. The colour midori was not part of the initial colour-coded ranking of people's clothes, but was pressed into service only significantly later, and then to represent those of a relatively low level of social standing. It was during the reign of the emperor Kotoku (645-654AD) that the colour 'midori' was adopted as the colour of clothing decreed for those of a very low social status. On this point, Nagasaki (1977, p.104) and other Japanese colour researchers support the view that:

...the colour midori was not one people thought much about. It wasn't held in high regard and didn't excite emotions...people conceptualized midori only in terms of its being the colour of 'wakaba' (new leaves) and, by association, considered it to refer to nothing more than a lack of maturity.

Indeed in the 8th century classical collection of writings, the Manyoshu, there are nuances made which support this position, an example being the expression 'ryoku-shi (midori-ko) no wakugo' (in vol. 16) meaning, literally, 'a young child who is green'.

The low level of status and salience traditionally accorded to the colour term 'midori' is an issue colour researchers in Japan (Kobayashi, 1974; Nagasaki, 1977; Fukuda, 1983; and Kitahara, 1997) have widely acknowledged and sought to explain through a variety of paradigms. Nagasaki (1977, p.76) claims that 'It is not clear as to when the name "midori" started to be used, but it is certainly well after "ao" was established as a color term'. He goes on to inform us that there are no definitive records detailing the etymological derivation of the term 'midori' but makes reference to a poem from the 8th century which appears in the Kojiki and which includes the line 'sonidori no aoki mikeshi' (the 'ao coloring of the kingfisher'). One theory is that the term 'midori' derived from the ancient term for a kingfisher, that is, 'sonidori'. It is thought that initially the first syllable was dropped and then, over time, the new first

syllable underwent a phonetic change from 'ni' to 'mi', the resulting expression being used to describe the ryokushou ('midori-ao' or green-blue) plumage of that bird.

The means by which 'midori' was traditionally produced is something agreed upon by all prominent Japanese colour researchers (including Uemura, 1943; Nagasaki, 1977 and Fukuda, 1983). Nagasaki (1977, p.76) informs us that:

...the colour known as midori-iro was produced by adding the yellow of either the kihada or kariyasu plants to the 'ai' (dull turquoise or indigo) of the indigo plant. Historically 'midori' was described in Japan as being 'an in-between colour' which was distributed throughout the East along with proper 'ao'.

In other words, 'ao' was thought of as being the primary term of reference, focusing on turquoise, with the lighter (yellowish) shade of 'midori' being thought of as a hue in-between 'ao' and 'ki'. Fukuda (1983, p.120) adds that 'there were very few traditional dyed cloth materials which had green as the main colour'. He reports that traditionally there was no single dye known to cloth makers which produced a clean green and states (1983, pp.119-120) that:

Technically it was too difficult to produce an attractive green from the kariyasu and ai plants...amongst the traditional Japanese colours there was no 'midori' which was the equivalent of 'guriin' ('green').

The modern concepts of 'midori' being represented by bright green and of turquoise being considered a colour in-between 'ao' and 'midori' were concepts unknown to the Japanese of yesteryear. The dullish 'moegi' (a light green) colour was representative of the colour green (the term 'moegi' is discussed later in this chapter). Fukuda (1983, p.126) tells us that, in a similar vein:

....amongst the traditional Japanese colours there was no 'ao' which was the equivalent of 'buruu' ('blue'), the nearest thing being a dullish turquoise colour, 'ai-iro'.

He does explain, however, that it was possible to produce the bright colours 'gunjou' and 'byakugun' from Azurite although, he adds, the resultant paint was suitable only for rock painting. This lack of a traditional bright blue colour is confirmed by Kobayashi (1974) who, in reference to the Edo period, reports that the 'ao', which was considered one of the six common colour terms of the day, was in fact not a bright blue, but 浅葱 'asagi', the duller blue-green colour characteristic of the leaves of young spring onions. For the early Japanese 'ao' covered most blues and greens and had its

focus in the area of the spectrum we call ‘turquoise’. This point is reinforced by Kobayashi (1974, p.120) who comments on the colour consciousness of the Japanese in the post-Meiji era:

The colours ‘ao-midori’ and ‘midori’ came into our consciousness and found a clear niche for themselves only as a result of the impact of Western culture in Japan. In oriental culture the distinction between ‘ao’ and ‘midori’ was never clear cut. If something was described as being ‘aoao to shita’ the reference was to the level of greenness it displayed.

Kitahara (1977, p.58) offers evidence that, apart from ‘aoao toshita’, the term ‘midori’ was also considered a natural descriptor for vegetation, indicating that the following listings are made under the heading ‘midori’ in the 17th century Japanese-Portuguese dictionary:

Young branches of trees. Fresh buds/shoots of trees. Verdure in open fields. Examples of usage: The mountains and fields turn midori. The mountains and fields are covered in midori. The mountains and fields come out in fresh midori.

For the entry ‘midori to appear’ (‘midori ga tatsu’) the definition provided in this dictionary is ‘for new buds, shoots and branches to appear’. From the above it can clearly be ascertained that there is evidence of ‘ao’ and ‘midori’ sharing semantic space.

‘Ao’ and ‘midori’: A historical perspective on their shared semantic space

It is not only the case that things that were midori in colour could be subsumed under the heading ‘ao’. The reverse situation was also to be observed on occasions.

Kitahara offers evidence that historically it was possible for ‘midori’ to cover the ‘blue’ portion of the colour spectrum too. This evidence, he suggests, is provided by both the 8th century Manyōshū and the 17th century supplementary Japanese-Portuguese dictionary. One year after the publication of the said dictionary (details of which are explained later in this chapter) a supplementary edition was produced and in it three further entries were recorded under the heading ‘midori’. They were ‘midori no koromo’ (clothes), ‘midori no nami’ (waves) and ‘midori no umi’ (sea). Each of these, however, was indicated to be of a poetic nature. In other words, these terms could be expected to be found only in traditional verse, poems, songs and writings but not in daily parlance. Notwithstanding, the entries for ‘midori no nami’ (waves) and ‘midori no umi’ (sea) were as follow:

Midori no nami ('midori' waves): waves of the high seas, that is to say, 'aoi' waves.

Midori no umi (the 'midori' sea): the wide, deep sea, the 'aoi' sea.

Here is clear evidence that 'midori' was being used in reference to things acknowledged as being 'ao(i)'. In the 8th century classical literary work Manyoshu there is an older example of this kind of usage where the sky is referred to as being a 'sky of midori'. Kitahara (1997, p.60) lists the following quotation from Vol 1, p.7 of the Choshueiso in the Manyoshu:

Nagamesuru midori no sora mo kakikumori tsurezure masaru
harusamezo furu. (The sky of midori which we view is overcast and the
spring rains drizzle).

We know from sources such as the Japanese-Portuguese dictionary, however, that such usages were not widespread and that 'ao' was evidently more widely used than midori in those days.

Awkwardness of 'midori' as a pre-nominal descriptor

In suggesting reasons why, in terms of its salience in the Japanese language, 'midori' has never 'rivalled', as it were, the term 'ao', Kitahara turns to grammatical explanations. He argues that 'midori' is an awkward term to use by virtue of the fact that it doesn't readily act as a pre-nominal descriptor and that accordingly it is not a simple process to combine it with nouns. For example, 'ao' is able to be used to construct many different compound expressions such as 'ao-ta' (green rice field), 'ao-na' (leafy vegetables/'greens') and 'ao-take' (young bamboo). By comparison the number of words 'midori' can directly combine with to make combinations is very small. The Japanese-Portuguese dictionary listed only the 3 entries: 'midori no koromo' ('midori' clothes), 'midori no nami' ('midori' waves) and 'midori no umi' (the 'midori' sea), each of these involving the expression 'midori-no'. Even today combinations including 'midori' usually take the 'midori-no' prefix, and there are but three common examples of this: 'midori no shuukan' (Arbor Week), 'midori no hi' (Environment Day) and 'midori no obasan' (lollipop lady/ crosswalk attendant). Few examples exist where the word 'midori' is used directly before a noun as a modifier. Kitahara lists only two, namely 'midori-mushi' (the protozoan green insect) and 'midori-zaru' (a green monkey [guenon]).

Plethora of traditional ‘-iro’ type expressions suggests a historical basis for the lack of practical need for a clear cut ao/midori distinction

The fact that traditionally the overall level of salience experienced by the colours ‘ao’ and ‘midori’ (but particularly the latter) was comparatively low in relation to other colours did not prevent an extensive lexicon from being developed to describe (though not necessarily distinguish) different shades of blues and greens. This was achieved in large part thanks to the very practical custom of utilizing the suffix ‘-iro’ (coloured). This is a timeless custom (referred to also in Chapter 2) which allowed an almost limitless number of colour terms to be coined based on common referents and notions of colour prototypicality. To illustrate that indeed the contemporary Japanese are the inheritors of a rich legacy of such terms I have reproduced at Tables 3.7 and 3.8 two lists of traditional Japanese colour terms categorized by Fukuda (1983, pp.114-116) according to the categories ‘midori’ and ‘ao’. The lack of a clear cut distinction between ‘ao’ and ‘midori’ is evidenced by the fact that, in the ‘midori’ category proposed by Fukuda, several terms which contain the character ‘ao’ (namely 青竹色 ‘aotake-iro’, 青磁色 ‘seiji-iro’ and 緑青色 ‘rokushou-iro [green-blue]) are included. The fact that the reading of the common character varies and includes the ‘kun-yomi’, ‘ao’ (‘ao-take’), the ‘on-yomi’, ‘sei’ (‘seiji-iro’) and a variant ‘on-yomi’, ‘shou’ (‘rokushou-iro’), does not in any way affect the meaning the character stands for. In the ‘ao’ category Fukuda has included the term 青緑 ‘ao-midori’, which is written with the same characters as those found in 緑青 ‘rokushou’, but in reverse order.

Fukuda’s list of traditional Japanese colour terms which he considers fall within the green portion of the spectrum is as follows. This extensive list proves there were many colour terms available and that whilst these were sometimes used to describe perceptible differences, at other times a plurality of terms could be used to describe a unitary hue. There is also considerable ‘cross over’ between the colours he classifies as ‘midori’ and those he classifies as ‘ao’ (as indicated above). The terms listed in Tables 3.7 and 3.8 come from all periods of post-7th century Japanese history.

Table 3.7

Traditional Japanese colour terms which are categorized by Fukuda (1983) as being ‘midori’

Moegi iro 萌黄 (葱) 色 (the colour of young onion shoots)

Hiwa-iro 鶺鴒色 (the colour of a field sparrow)

Wakakusa-iro 若草色 (the colour of young grass)

Wakanae-iro 若苗色 (the colour of a seedling)

Wakame-iro 若芽色 (the colour of new shoots)

Kusa-iro 草色 (the colour of grass)

Yanagi-iro 柳色 (the colour of willow trees)

Uraha-iro 裏葉色 (the colour of the underside of leaves)

Koke-iro 苔色 (the colour of moss)

Uguisu-iro 鶯色 (the colour of the nightingale)

Miru-iro 海松色 (the colour of rock seaweed)

Oimidori 老緑 (the colour of old green)

Midori-iro 緑色 (the colour of verdure)

Midori-iro 翠色 (the colour of verdure)

Tokusa-iro 木賊色 (the colour of a Dutch rush/shave grass)

Aotake-iro 青竹色 (the colour of fresh bamboo)

Tokiwa-iro 常磐色 (the colour of evergreen trees)

Senzai midori 千歳色 (the colour of Chitose)

Rokushou-iro 緑青色 (green-blue)

Wakatake-iro 若竹色 (the colour of young bamboo)

Seiji-iro 青磁色 (the colour of celadon porcelain)

Natsumushi-iro 夏虫色 (the colour of summer insects)

Table 3.8

Traditional Japanese colour terms which are categorized by Fukuda (1983) as being 'ao'

Ao-midori 青緑 (blue-green)

Asagi-iro 浅黄 (葱) 色 (pale yellow [onion shoot] colour)

Mihanada 水縹 (traditional pale blue)

Mizu-iro 水色 (water colour [aqua])

Ai-iro 藍色 (the colour of the Japanese indigo plant)

Hanada-iro 縹色 (traditional light blue)

Hana-iro 花色 (traditional light blue)

Tsukikusa-iro 月草色 (the colour of the dayflower)

Tsyuyukusa-iro 露草色 (the colour of the spiderwort plant)

Nando-iro 納戸色 (greyish Antwerp blue)

Gunjou-iro 群青色 (ultramarine)

Ruri-iro 瑠璃色 (the colour of lapis lazuli, bright blue)

Kon-iro 紺色 (navy blue)

Byakuran-iro 白藍色 (pale aqua colour)

Kame-nozoki 瓶覗 (pale aqua colour)

Nozoki-iro 覗色 (pale aqua colour)

Sora-iro 空色 (the colour of the sky/azure)

Aonibi 青鈍 (dark grey-blue)

The existence of these extensive lists of traditional colour terms which cover the blue-green portion of the spectrum should not be interpreted as indicating there ever had been widespread usage of these terms in everyday life. Nor indeed should these lists be interpreted as meaning there were, in fact, always very detailed discriminations made by speakers of Japanese in bygone days. This is because the ‘-iro’ suffix was instrumental in allowing for more than one term to describe a single colour. Fukuda (1983, pp.114-125) indicates that several of these listed terms were used synonymously. For example, in the green classification a) 鶯色 ‘hiwa-iro’ and 若草色 ‘wakakusa-iro’, b) 若苗色 ‘wakanae-iro’ and 若芽色 ‘wakame-iro’, c) the variant orthographies for ‘midori-iro’ (緑色 and 翠色) and d) 常磐色 ‘tokiwa-iro’ and 千歳色 ‘senzai midori’. In the blue classification synonymous terms are reported as a) 水縹 ‘mihanada’ and 水色 ‘mizu-iro’, b) 花色 ‘hana-iro’, 月草色 ‘tsuki-kusa-iro’ and 露草色 ‘tsuyukusa-iro’ and finally c) 白藍色 ‘byakuran-iro’, 瓶覗 ‘kamenozoki’ and 覗色 ‘nozoki-iro’.

A chronological perspective on the history of colour nomenclature in Japan

I now offer a brief overview of the situation in relation to the history of colours and colour nomenclature as is pertinent to Japan, according to the chronological progression of that country’s acknowledged historical eras.

Nara period: 724-794 AD

Reference has already been made to the Nara period of Japanese history and the role played by the terms ‘ao’ and ‘midori’ in the Kojiki and traditional waka poetry.

Ikegami (1978, p.16) suggests that the expressions ‘ao-yama’ and ‘ao-kusa’, which appear in the 8th century collection of court poetry, the Manyoshu, offer proof that the term ‘ao’ in antiquity must have embraced a greater semantic range than it does in the present day. In stating that the reference was to ‘verdant mountains’ and ‘green grass’, Ikegami implies that the referents ‘yama’ (mountains) and ‘kusa’ (grass) would not be described using ‘ao’ in the present day. (This is an implication that my research findings, reported in Chapter 6, indicate is not true without qualification).

In this connection Stanlaw (1987, p.108) quotes examples of the use of ‘ao’ from the Nara period and states:

Besides the use in Japanese of 'ao' (blue) terms in situations which would require the use of green terms in English, there are instances where 'ao' and 'midori' seem to be synonymous. For example, 'ao-yama' (lit. blue mountains) or 'midori-shitataru yama-yama' (lit. mountains dripping with green) might easily be used to describe the same scene.

He notes also that the term for 'green grass' can be written using the characters for 'ao' or 'midori' ('ao-kusa' 青草 or 'ryoku-sou' 緑草). These expressions are read according to the 'kun-yomi' and 'on-yomi' readings respectively and would literally translate as 'blue grass' and 'green grass' respectively. It is thus clear from what are the oldest extant written texts in Japanese that the semantic boundary of 'ao' historically incorporated things which English speakers would unequivocally describe as green.

Heian period: 794-1191 AD

The issue of the suffixical use of '-iro' has been introduced in Chapter 2, specifically in relation to the question of determining what constitutes a 'basic colour term' in Japanese and indeed the question of the likely disqualification of some of the Japanese terms touted as 'basic' by Berlin and Kay (1969). Nagasaki (1977, p.125) offers proof that the practice of putting the suffix '-iro' ('-coloured') after a noun to coin new colour terms is a time honoured one. The development and adoption of such terms principally occurred during the Heian Period.

The following is a list of selected traditional colour terms based on the prototypical colours of certain flowers or leaves of plants. It comes from the Heian Period, an age which saw a great flowering of culture in Japan. The listed terms are not in common use today.

1. Moegi-iro (the colour of sprouts or newly sprouted leaves, yellow-green)
2. Miru-iro (the colour of seaweed, dark green)
3. Tokusa-iro (the colour of shavegrass, blackish green)
4. Asagi-iro (the colour of new onion shoots, pale blue)
5. Kuchiba-iro (dead leaf colour, tawny brown)
6. Kikyou-iro (Chinese bellflower colour, dark violet)
7. Kanzou-iro (liquorice colour, dark brown).

So common was the practice of using ‘-iro’ as a suffix in the Heian Period of Japanese history that some 120 such colour terms relating to nature were coined, certain shades being given different names depending on the season, other terms being variously classified as ‘ao’ or ‘midori’ depending on the colour researcher. For example, the colour term ‘asagi-iro’ 浅葱色, listed above, was described in Nelson (1986, p.545) as being ‘light blue’ but by Nagasaki (1977, p.134) using the term ‘midori’, as follows:

...the colour of the leaves of the onion when they have just sprouted - a pale indigo (‘ai’) incorporating ‘midori’. It is a paler dye than ‘ai’ (indigo blue) with a similar hue to ‘hakuai’(white-indigo) and ‘asahanada’ (light blue), but with a stronger ‘midori’ tone.

It is clear from Nagasaki’s report on the description of colour terms which were coined in the Heian Period and which ‘continued to be used in later ages’ (Nagasaki 1977, p.130) that during that period ‘ao’ was not narrowly interpreted as meaning ‘blue’. In reference to the ‘kasane-iro’, or seasonal contrasting colours of the outside and inside of the ‘uchiki’ (summer kimonos of the day), Nagasaki (1977, p.137) states that:

...there was a profusion of white ‘unohana’ [*deutzias* or Japanese sunflowers] on top of the ‘midori’ of the leaves and that the outside was white and the inside ‘ao’ [‘ao’ referring to a dark green], this kimono being worn during the part of summer when this flower bloomed.

Indeed this example parallels the present day usage of the term ‘ao’ in the expression ‘ao-ba’, a literary or poetic description of mature green leaves.

In reference to kimonos of the day which depicted plants that could be seen throughout the year, Nagasaki (1977, p.137) cites the example of one known by the name ‘matsushige’ (layered pine trees), the outside of which was described using the term ‘ao’ (or alternatively, in some instances, ‘moegi’), with the inside being purple and ‘sasa no ao’ (the ‘ao’ colour of bamboo grass). Here is further evidence that in the Heian Period ‘ao’ was used as a term which incorporated green hues, in this case the pale green colour of ‘sasa’ bamboo grass.

Kamakura period: 1191-1334 AD

Yet further historical evidence of the link between ‘ao’ and the colour green is provided by Nagasaki’s description (1977, p.154) of the colours representative of the ‘buke’ (samurai classes) from the late Heian Period (noted for its court elegance)

through to the Kamakura Period (noted for the military spirit of its soldiers). These colours are listed as including 'ruri-iro' (lapis-lazuli), 'kachi-iro' (deep indigo colour), 'miru-iro' (colour of a rock seaweed), 'hihada-iro' (cypress bark colour) and 'ao-goke-iro' (the 'ao' moss colour). This 'ao-goke-iro' is described as being the colour resulting from layering two materials of different colours, the outer layer being dark 'moegi' (yellow-green) with the inner layer being 'ao-guro' (described as a 'dark green', Nagasaki, 1977, p.154), the overall colour being a very dark shade of 'moegi'.

The Japanese colour researcher Kitahara (1997, p.55) offers evidence from the 14th century that 'ao' was used as a descriptor to cover green for certain things in classical poetry. He quotes a poem from passage 119 of the book *Tsurezureso* (Random Thoughts from my Leisure Hours; Reflections in Hours of Idleness) written in Kamakura in 1331AD by Sodo Yamaguchi, which goes:

Me niwa ao-ba, yamahotogisu, hatsu-gatsuo.

('Ao-ba' for the eyes, the wild cuckoo, the bonito of the season).

This is a poem which refers to the summer experience of the eyes being pleased with 'ao-ba', the cry of the wild cuckoo pleasing the ear and the mouth being satisfied with the taste of the season's first bonito fish, something explained as being a delicacy of the Kamakura area. In this poem the expression used to describe leaves is 'ao-ba' and the reference is to the mature, dark coloured leaves typical of mid-summer in Japan.

In reference to the colours and colour schemes of the artwork of the Kamakura period, Nagasaki (1977, p.151) points out that the typical Buddhist art of the day embraced colour schemes which had dark or dim backgrounds with clouds, white and 'touches of crimson and "ryokushou" 緑青 acting as accent colours'. We know from this that, albeit not extensively used, the composite colour 'ryokushou' (green-blue), unlike either 'ryoku' 緑 (i.e. 'midori') or 'shou' 青 (i.e. 'ao'), was a colour evident in the religious artwork of the day.

Nanbokucho 1334-1392AD and Muromachi 1392-1575 AD Periods

Many colour terms deriving from the names of insects and birds appeared during the Muromachi period. Reference is made by Nagasaki (1977, p.164) to the use of 'tokage-iro' (lizard coloured) in the classical work *Sadatake Zakki* from this period, where it is described as being 'a black colour with a blue-green lustre'. Other terms

recorded as having been used in this period of Japanese history were 'tobi-iro' (hawk colour) and 'hiwa-iro' (sparrow colour).

Nagasaki (1977, p.162) refers to the Muromachi period of Japanese history as being an 'age of appreciation of the unadorned, simplicity and the basicness which developed with the tea ceremony'. Bright colours were shunned and Nagasaki lists the principal colours used for clothes as 'botan-iro' (peony colour), 'hiwa-iro' (sparrow colour) and 'tokage-iro' (lizard colour). 'Hiwa-iro' is described (1977, p.164) as being a 'yellow with a sharp "midori" tone which was made by adding pale "ai" (indigo) to "kihada" (yellow)', while 'tokage-iro' is described as being 'a moegi-based colour with a black "ao-midori" lustre'.

'Kuro' (black), 'ryokushou' 緑青 (green-blue) and 'gunjou' 群青 (ultramarine/navy blue) were among the dominant colours of the Muromachi period, Nagasaki informs us. It should be noted both that 'ryokushou' 緑青 is a composite term comprising the characters 'midori' 緑 and 'ao' 青 in combination and that 'ao' 青 is embellished to become 'gunjou' 群青. Accordingly it is clear that whereas 'midori' as such was not a prominent colour term in the Muromachi period of Japanese history, 'ryokushou', a term representing the combination of green and blue, was.

Momoyama period 1575-1603 AD

The colours suggested by Kirihata (1983, p.154) as being representative of this period of Japanese history are 'shu' (red), 'ryokushou' (green-blue), 'gunjou' (ultramarine), 'murasaki' (purple) and 'ki' (yellow). Again, neither 'ao' nor 'midori' is mentioned as being a colour term in its own right, both terms appearing only in combination with each other in the composite term 'ryokushou'. The suggestion by Nagasaki that neither 'ao' nor 'midori' was prominent in its own right in the Muromachi period of Japanese history is supported by Kirihata in relation to the Momoyama period and later, in the post-Meiji period, by Kobayashi (1974, p.20).

Edo period 1603-1868 AD

This is widely considered to be the final age in Japanese history for which there was uninterrupted continuation of the colour naming traditions of preceding eras. During this age we witness examples of 'midori' being used to mean plants and plant

growth in classical literature. For example, in the Chuka Wakagi Shisho (Selected Chinese Saplings Poems) Vol 1 (15 ura) from the year 1634 we see the poem:

Monzen ni yanagi wo saitearuga, harusame no naka midoriga noburu
hodoni misumisu yanagimo edahaga nobite itsunomayara iroga fukaku
naruzo. (A willow tree was cultivated at the gate and through the soft
spring rain the ‘midori’ came forth, the branches and leaves growing,
soon to turn a dark colour).

In this case Kitahara concludes that ‘midori’ was used to refer to the young buds or branches of trees. ‘Midori’ was used also in reference to luxuriant plant growth. This is demonstrated in the following poem from the Middle Vol (53 omote) of the same collection:

Noryoku wa atsuatsuto shigeritaru midori ya. (The midori grew profusely
in a dark green).

It is indisputable that up until the time the first significant cultural contact with European culture was made, the Japanese used ‘midori’ primarily in reference to the entity of ‘greenery’. Furthermore, evidence has already been offered indicating that ‘ryokushou’ (green-blue) was considered a colour in its own right rather than an ‘in-between’ colour and that ‘ao’ was not narrowly interpreted as meaning ‘blue’. The first contact with European culture which was significant in terms of having a lasting effect on the Japanese culture, involved the arrival of Portuguese missionaries in Japan in 1543 AD. An important document from the early Edo period which sheds light on the use of the Japanese language in the early 17th century is the Japanese-Portuguese dictionary, referred to earlier in this chapter, which was edited and produced by the Portuguese missionaries in the first year of the Edo period (1603 AD). Kitahara (1997, pp.56-57) lists the following Japanese terms (rendered here in Roman letters but originally orthographed in the local script) and descriptions (translated here into English but originally written in Portuguese) found in this dictionary. The usages of these strongly suggest that, in some cases, it was not the colour sense of the term ‘ao’ that was being used, but rather the connotation carried in relation to ‘nature’, ‘freshness’ or ‘being unripe’ that was being drawn upon.

Ao-ba	leaves which are midori-iro in colour
Ao-kusa	grasses/weeds which are midori-iro in colour
Ao-hiki	a frog which is midori-iro in colour
Ao-gaki	a kind of Japanese fruit like an apple, one which is still green

Ao-mame	a kind of green bean
Ao-na	the midori-iro coloured leaves of plants such as the white radish and turnip
Ao-nori	a kind of midori-iro coloured seaweed used as food
Ao-sa	a midori-iro coloured seaweed found clinging to rocks on the shore
Ao-ta	an unripe field of rice
Ao-take	bamboo which is midori-iro in colour
Ao-tsuzura	arrowroot, a kind of plant resembling ivy (reference is to when it is midori-iro in colour)
Ao-yagi	poetic. Same as ‘yanagi’: a willow tree which is midori-iro in colour in Spring.

In the Portuguese language the actual word used was ‘verde’, translated by Kitahara as ‘midori’. Again, in this dictionary ‘ao-ta’ is explained as being ‘an unripe field of rice’ and we see that although ‘ao-gaki’ could have been described as being ‘an unripe persimmon’ it was described with reference to colour. These entries indicate that the Japanese of the Edo period were cognizant of the fact that ‘ao’ carries both the meaning ‘unripe’ and the meaning ‘midori-iro in colour’.

The prominence of ‘ao’ over ‘midori’ noted in the 8th and 11th centuries is evident here again in the 17th century, with the Japanese – Portuguese dictionary offering clear evidence that ‘ao(i)’ was a colour term under which ‘midori’ could be subsumed in certain circumstances. The adjective ‘aomi-kachi’, defined as ‘having blue or green colours prevailing’, offered proof of the fact that the term ‘ao’ encompassed a considerably broad section of the colour spectrum in the early years of the Edo period. Kitahara (1997, p.58) notes that under the listing ‘aoi’ in the earliest Japanese-Portuguese dictionary there were 3 meanings given, namely a) ‘dark blue (things)’, b) ‘green (things)’ and c) ‘raw, that is to say, unripe’. In addition, he notes that the said dictionary lists the verb ‘aomu’, which it defines alternatively as ‘plants showing a green colour’, ‘to turn green’ and ‘to turn blue or to be dyed blue’. In the original version of the Japanese-Portuguese dictionary there were only two references to ‘midori’, namely ‘young buds or branches of trees’ and ‘a young child to the age of 4 or 5’.

As mentioned earlier in this chapter, Japanese colour researchers agree that the JNS of the Edo period considered ‘moegi-iro’ to be representative of the colour

‘midori’. Some researchers (such as Kobayashi) consider this to be the case for modern Japanese also. He (1974, p.110) states that:

The Japanese hold the ‘ki-midori’ (yellow-green) of the Edo period up as being representative of ‘midori’, associating it with the ‘midori’ [colour] of ‘moegi’ (young onion shoots) and ‘ine’ (rice plants).

My research has indicated, however, that virtually all modern day Japanese consider ‘ki-midori’ to be a colour area in its own right which is related to, but distinct from, green proper (see Chapter 6). Furthermore, I contend that for contemporary JNS the colours of forests, lawns and trees, in addition to the verdure of new leaves in spring, are considered to be prototypically ‘midori’.

It is interesting to note that there is some disagreement amongst JNS as to how the colour term ‘moegi-iro’ should be transcribed. The Pacific Friend magazine (1993, p.32) continues to use characters which mean the colour of ‘young onion shoots’ 萌葱 in the way that Kobayashi (1974, p.119) contends is appropriate, whereas Nagasaki (1977, p.133) strenuously argues that this orthography is erroneous and that either 萌黄 (the yellow colour of sprouts) or 萌木 (the colour of new tree buds) should be the only acceptable characters used for transcription. He explains that the character for onions, 葱 (‘negi’) refers to the ‘ao tinged with midori which is the colour of onion leaves’ and that it is thus inappropriate to utilize this character when writing ‘moegi’, which he describes as ‘a light green (chartreuse) colour’. Fukuda (1983, p.82) acknowledges both choices of kanji, listing the expression as having alternative orthographies, (萌黄[葱]色), and explaining that:

In the case of moegi, if you write it with the kanji ‘ki’ (yellow) it would tend towards the yellow end of the scale, whereas if it is written with the kanji for ‘negi’ (onion) the tendency would be for it to refer more to the green end of the scale.

Kobayashi (1974, p.119) informs us that in the Edo period the hues considered identifiable ‘according to the natural order of the world’ (no explanation of this expression being given) were ‘aka’ (red), ‘daidai’ (orange), ‘ki’ (yellow), ‘midori’, ‘ao’ and ‘murasaki’ (purple) and reports that the ‘midori’ referred to here was not like the ‘ao-midori’ (blue-green) or the ‘midori’ (green) we recognize today, but rather that it

focussed on ‘moegi-iro’ (the partnership this colour set up with red 朱赤, he suggests, can be seen in a variety of settings and is thought to have originated in India). Regardless of the extent to which the ‘midori’ term approximated ‘moegi-iro’ at that time, it is highly significant that in the Edo period ‘ao’ and ‘midori’ were, for the first time, clearly presented as being separate colour terms - a tradition which was to be carried on through succeeding eras to the present day.

Meiji period 1868-1912 AD

This was the age which first saw the appearance of coal-tar dyes and Western clothes in Japan. It was also the age which first saw colour playing a role in fashion in Japan (Garfield, 2000). Hitherto, concern for the colours of clothes had been the prerogative of court nobles, people involved with the life of Buddhist temples, samurai and the privileged classes. With the opening up of Japan to Western influences in the Meiji period there was a veritable onslaught of colour terminology introduced into the Japanese vocabulary. Nagasaki (1977, p.171) describes it thus:

From the Edo period through the Meiji and Taisho periods and then the Showa period, the colour categorization system in Japan changed at a bewildering rate in accordance with what was happening in the rest of the world. The Meiji period marked the boundary between the use of colour terms according to long standing Japanese traditions and the modern tendency towards increasingly accepting and absorbing Western influences.

The dark and sedate colours of the Edo period didn't fit in well with the new direction of modern, post-Meiji Restoration Japanese society and they gradually fell from popular favour. Nagasaki (1977) reports that the sombre colours of the pre-Meiji days of Japan gave way to popular bright colours produced using chemical dyes. The work of Stanlaw (1987) makes it clear that where a traditional colour might still be popularly found, the terminology used to describe it could differ from that which was traditional, depending on the context in which it was being used. The colour purple is a classical case in point. Things associated with the modern world would be referred to as being ‘paapuru’ (the loanword ‘purple’) while things definitely belonging to the Japanese tradition, such as the kimono, would retain the traditional expression ‘murasaki-iro’ in reference to the same colour. Nagasaki (1977, p.187) also reports on a unique aspect of Japanese social history in this regard. “The “murasaki” and “aka” hues which had been banned until the Edo period (this had been felt necessary in order to clarify the social status of individuals in earlier ages) had their names revised to

“paapuru” (purple) and “rozu” (rose) and were considered novel amongst the new colour terms’. In other words, with the new terminology came a sense of modernity.

Nagasaki (1997, p.186) offers the following commentary on the onslaught of changes experienced by the Japanese people in relation to the world of colour following the adoption by Japan of Western technology:

With the passage of time the sense of beauty a people hold, and the words used to describe its elements, change. The hues of yesteryear, and the things they represented, become antiquated and eventually difficult to comprehend. The post-Meiji Westernization, which meant a strengthening of the position science and technology played in society, resulted in a move away from the natural materials used hitherto as dyes and cosmetics, to chemicals. The range of new colours possible was nothing short of dazzling. The colours themselves were new, showy and vibrant and they replaced the sombre tones characteristic of natural dyes. The foundation of the colour system of our country was changed from one being based on hues produced from natural materials to one based on chemicals. This resulted in a great leap forward being made in the sharpness and clarity of colours producible. The embodiment of this aspect of our culture moved towards being internationalized. The modern generation of people themselves embraced the new colours. The flavour and sense carried by the old Japanese colours became thought of as being unsophisticated.

McNeill (1972, p.25) suggests 1860 was the year which marked the invention of synthetic dyes derived from coal tar and petroleum and which thus should be recorded as the boundary between the traditional and the modern worlds of colours and colour nomenclature in Japan. Certainly the early years of the Meiji period were characterized by massive social and technological change with a concomitant linguistic impact in relation to colour nomenclature. The status accorded to loanwords in the Japanese language was astoundingly high. Stanlaw (1987, p.119) comments that ‘The influx of American and British technical advisors, teachers and missionaries gave the English language a high level of prestige’. This prestige meant that the adoption of English terms (including colour terms) was virtually unbridled and loanwords were introduced even in cases where there was existing terminology which covered a very similar semantic area and which had proven sufficient for the communicative needs of the Japanese linguistic community for centuries. We should be cautious, however, not to presume that a loanword was ever identical or interchangeable with the native terminology. While a pair of terms (such as ‘buruu’ and ‘ao’ or ‘guriin’ and ‘midori’) might be considered synonymous by some JNS, Stanlaw (1987, p.188) indicates that the

foreign loanwords consistently represent a higher level of brightness and a broader range than their native equivalents. He states that:

The mapping tasks showed that the English loanword colour terms have no special correspondence to native English colour terminology. In other words, it is the label (the colour term) but not the referent (the colour itself) that is borrowed into Japanese. There is also no special connection between the native Japanese colour categories and the English loanword colour categories. That is, for most informants most English loanword colour terms are not just simple substitutes or synonyms for their native Japanese counterparts.

At a connotative level also there is a great deal of complexity involved in this situation. This complexity and the lack of direct correlation between colour terms are reported on in Chapter 5, where it is pointed out that the meaning of 'lacking in experience or maturity', which is carried by the English word 'green', while not a feature of the loanword 'guriin', is a meaning carried by the term 'ao' and that the connotation of 'sadness or loneliness' carried by the English word 'blue' and shared by the loanword 'buruu', is a meaning alien to the native term 'ao'.

The successive waves of loanwords the Japanese language has been subjected to in its recent history have resulted in a large number of 'doublets' and sometimes 'triplets' composed of a native word, a Sino-Japanese word, and a Western-sourced word. Researchers (Shibatani et al.) inform us that near-synonyms are often associated with different shades of meaning or stylistic values, and the correct use of them is delicate both linguistically and politically, with a balance between native terms and loanwords considered desirable. With the introduction of foreign loanwords for colours Japanese speakers were able to describe the same colour (for example, blue) as not only 'ao-iro' (and its variants), which employs the 'kun-yomi' of the characters, and 'sei-shoku', which employs their 'on-yomi', but also as 'buruu'. Similarly for green, to 'midori-iro' and 'ryoku-shoku' was added the expression 'guriin'. Reference has already been made to the bewildering rate at which loanword colour terms were imported to Japan during the Meiji Period. The differences between the attributive and connotative aspects of these loanwords and the native expressions are looked at in detail in the next chapter.

Although many loanword colour terms were introduced to Japan during the Meiji Period, it was not the case that the introduction of new colour nomenclature necessarily meant new hues as such were simultaneously imported. Nagasaki (1977, p.135) points out that the colour term 'oriibu' (olive), which appeared in the post-Meiji

Restoration vocabulary of Japanese, was of the 'miru-iro' (seaweed colour, a dark shade of 'moegi') grouping. While he admits that there are 2 theories as to the hue of the colour 'miru-iro', one placing it in the 'ao' grouping and the other considering 'moegi' to be the appropriate classification, it would appear that in this case the traditional colour was carried over into modern Japan and simply given a new name tag and image. The terms 'midori-iro' and 'ryoku-shoku' could also be applied to something which is coloured 'oriibu'.

Shibatani (1990) comments on this aspect of the Japanese language and claims that the extent to which Japanese provides alternate ways of expressing the same thing constitutes a characteristic feature of the language that sets it apart from other languages, whilst also being one of the factors that contribute to the myth that Japanese is vague, difficult, or even illogical. In Chapter 2 the grammatical aspect of this issue (the question of 'on-yomi' vs 'kun-yomi') has been addressed. In terms of the extra-grammatical aspects of this issue it should be pointed out that the choice of 'on-yomi' imparts a sense of the expression being formal and having technical clout while the user is thought of as being learned. Unger (1987, p.84) refers to this by stating that the ability to use expressions based on formal Chinese expressions is a sign of erudition in Japanese society. The choice of 'kun-yomi' suggests familiarity and reader/listener friendliness, with the expressions being readily understandable. Loanwords are used when wishing to appear modern, sophisticated or educated. They can also be used when the classification of a colour is unclear. On this point Stanlaw (1987, p.253) informs us that 'English loanword colour terms might be selected by informants in the face of uncertainty' and that they can be pressed into service when there is 'indeterminacy in naming colours'.

The question of foreign loanwords in Japanese is highly pertinent to this study. It is no exaggeration to say that foreign loanwords have permeated the lexicon of virtually all subject areas in the language – colour being no exception. Researchers such as Shibatani and Nagasaki recognize three distinct waves of loanwords that have come into Japanese from European languages. The earliest was associated with pre-Meiji contact, initially with Portuguese and subsequently with the Dutch. The second was during the Meiji era. After Japan was exposed to Western technology in the Meiji period English, German, and French usurped the position of Dutch as a language of foreign learning. After World War II the third onslaught of foreign loanwords came,

primarily from America. Thus it is that since the Meiji period English loanwords have claimed the lion's share of the vocabulary of loanwords of Western origin.

Taisho 1912-1926 AD, Showa 1926-1988 and Heisei 1988-present

The foreign loanword floodgates, which had been slightly opened before the Second World War, were opened fully with the many reforms introduced to Japan by the Allies, specifically by the Supreme Commander of the Allied Powers, General Douglas MacArthur. The practice of using foreign loanword colour terms, which in the pre-war years had become an established tradition, was interrupted only temporarily during the world war before flourishing like never before in the post-war years.

Nagasaki (1977, p.188) lists the following as the names of colours that have ridden the crest of popularity in Japan since the closing years of the Meiji period through until the Second World War

Late Meiji:	the red grouping:	majenta (magenta)
	the purple grouping	paapuru (purple/red-purple)
Taisho:	the red grouping:	pinku (pink)
		rozu (rose)
	the green grouping:	emerarudo (emerald)
		piikoku (peacock)
		oriibu (olive)
	the blue grouping:	rozu riifu (rose leaf)
Early Showa;	the purple grouping:	kobaruto (cobalt)
		safuran (saffron)
		bioretto (violet)
	the red grouping	kurimuson (crimson)
	the yellow grouping	guriin gorudo (green gold)
		masutaado (mustard)
	the green grouping	marakaito guriin (malachite green)
	the blue grouping	neebii buruu (navy blue)
	the brown grouping	kuriimu kohii (crème coffee)

When Japanese society settled down after the war and international contacts and exchange grew in popularity, Japan was strongly influenced by overseas trends and

English and French colour names were widely adopted. Indeed Shibatani states that after the war, in the fashion world loanword colour terms took the lead over native terms and eventually reached the point where they represented the great majority of popular colour names in usage. This practice is fostered and promoted by the twin worlds of advertising and consumerism which are the hallmarks of contemporary Japanese society. On this point Takashi (1990, p.111) comments that ‘the primary function of English loanwords in Japanese is to make the product or service seem more modern and sophisticated’.

It wasn't the case that the adoption of a great number of loanword colour terms meant that traditional Japanese colours or colour terms were necessarily discarded, however. There was a post-war reaction against the tendency to move towards using a plethora of colours of international fashion accompanied by a sense of the need to reflect on and re-evaluate the use of traditional Japanese hues and terms in the modern setting. One possible cause for the reaction against the indiscriminate adoption of loanwords was a very pragmatic one. JNS began to feel they were not in control of their own language as some of the more obscure loanwords (including colour terms) used in mass consumption advertising were hardly understood by the vast majority of consumers. Nagasaki (1977, p.188) commented that:

People were not able to cast aside things that were disappearing. There were nostalgic attachments. This tendency is still noticeable today.

The continued use of the word ‘ao’ to refer not only to ‘blue’ but also to numerous referents which would be described as being ‘green’ by English speakers, would appear to be a case in point, as would the continued use of ‘ao’ in a metaphorical context. In contemporary literature there are innumerable examples of such usages. Two listed by Hasegawa (1974, p.98) are from the modern classical authors Kawabata Yasunari and Natsume Soseki. In Kawabata's novel ‘Senbazuru’ we find the expression:

Momiji wa aokatta (the maple trees were green)

while in the novel *Botchan*, Natsume Soseki uses the expression:

Tagai kao no aoi hito wa yaseterumondaga, kono otokowa aoku fukureteiru. (A man of pale face is generally thin and lank, but he was exceptionally pale and stout).

The point here is that in neither of these cases would it be appropriate (nor indeed possible) to translate ‘ao(i)’ as ‘blue’. In other words the colour term ‘ao’, as used here, represents a long-standing aspect of Japanese colour nomenclature tradition which has survived into modern times. The fact that such ‘traditional’ usages of ‘ao’ as recorded in the contemporary works of literature quoted above (and likewise in innumerable modern writings in Japanese) are common in the present age should not be interpreted to mean, however, that JNS are incapable of perceiving the difference between blue and green or discriminating these colours. On the contrary, Chapter 6 of this thesis provides ample evidence to prove that blue and green are clearly distinguished and thought of as separate colours in the minds of present day JNS.

The enduring and widespread familiarity with, and attachment to, the colour term ‘ao’ is exemplified by the results of a survey conducted in the latter years of the Showa Period (the early 1970s) and reported by Nishikawa (1975, pp 120-136). When asked to list their favourite colours the three age categories identified in the study (children/adolescents, young and middle-aged adults and the elderly) were in unanimous agreement on the point of placing ‘ao’ at the top of the list of the six colour terms offered for consideration. This information is reproduced in table 3.9, below.

Table 3.9

Colours popular with JNS as identified by Nishikawa (1975) according to age group

children/adolescents 児童少年	young and middle-aged adults 成人	the elderly 老年
ao 青	ao 青	ao 青
aka 赤	murasaki 紫	murasaki 紫
midori 緑	aka 赤	midori 緑
ki 黄	midori 緑	aka 赤
murasaki 紫	daidai 橙	ki 黄
daidai 橙	ki 黄	daidai 橙

Information provided in relation to data breakdown both by gender alone and by age and gender (Nishikawa 1975, pp.125-129) also indicates a high level of prominence of 'ao'. In terms of being a popular colour, males overall placed 'ao' at the top of a list of 17 colours cited by participants, while females placed 'ryoku-sho' in third place, immediately ahead of 'kobaruto ao' (cobalt blue) and 'ao'. 'Sumire' [violet] and 'aka' [red] occupied the top two positions. For both genders taken overall, as for the non-gender identifying survey by age brackets, 'ao' featured ahead of 'midori'. Similarly 'ao' featured ahead of 'midori' in the data provided which indicate the favourite colours of both genders according to age. This information underscores the psychological prominence of 'ao' for JNS.

Three important conclusions can be drawn from Nishikawa's research findings: a) 'ao' is highly prominent in the psyche of modern day Japanese, b) this prominence cuts across generational lines and c) 'ao' and 'midori' are treated as discrete categories by contemporary JNS.

The contemporary JNS view of 'ao'

The use of the terms 'ao' and 'midori' by Nishikawa (1972, p.99) further suggests that they are being treated as discrete categories. In discussing the question of colour perception, he presents two figures for comparison (Appendix 3.1) and explains:

Figure 8 shows an 'ao-midori' figure overlaying an 'ao' background (A) and the same coloured figure overlaying a 'midori' background (B). Although the colour being overlaid is identical in both cases, in figure (A) it appears to have a greenish touch to it ('midorimi gakatte mieru') whereas in figure (B) it would appear to have a bluish feel to it ('aomi wo obite mieru'). In other words, when 2 colours are compared side by side the chromatic environment tends to highlight the hues as contrasts, this tendency being more pronounced when the colours are close to each other on the spectrum and less pronounced when they are far from each other.

Clearly, Nishikawa considers 'ao' to be blue, 'midori' to be green and 'ao-midori' to be understood accordingly, that is as 'blue-green', or turquoise. When he makes reference to a newspaper article from the Mainichi Shimbun of 27th January 1961 (1972, p.215) he states that the 'main colours used in the fashion world are expressed using English foreign loanwords' and provides the following translations:

Table 3.10

Popular English loanwords used in the fashion world, according to Nishikawa (1972)

Loanword	‘chakooru	‘buraun’	‘buruu’	‘guriin’ (green)
colour term	guree’	(brown)	(blue)	
listed in the	(charcoal grey)			
Mainichi				
Shimbun				
(English				
equivalent in				
brackets)				
Japanese	‘chakooru	‘chairo’	‘ao ‘	‘midori’
translation as	guree’			
provided by				
Nishikawa				

From this it is evident that Nishikawa clearly distinguishes ‘ao’ and ‘midori’ and equates the former with English ‘blue’ and the latter with English ‘green’. While the evidence provided here that in the present age ‘ao’ and ‘midori’ are generally thought of as quite separate colours – in other words that ‘midori’ is accepted as a fully-fledged colour term in its own right and that, in a denotative sense, it is considered distinct from ‘ao’ - there is also evidence that the traditional attributive and connotative senses of the term ‘ao’ remain as a legacy in the modern language. For example, in referring to an ‘aomonoya’ (greengrocer - literally ‘a trader in “ao” things’/ ‘an “ao” produce vendor’) Nishikawa (1972, p.270) states:

As the...name ‘aomonoya’ suggests, reference is to varieties of leafy vegetables which are...of a fresh green colour.

Thus he acknowledges that the attribute of ‘having leaves’ and the connotation that these be ‘fresh’ are understood as being semantic integrals of the descriptor ‘ao’. Although ‘ao’ might be used in the description of green vegetables, it is accepted that their colour, as such, is ‘midori’ (the research data I have collected, nonetheless, indicates that for some JNS, extricating the colour denotative from the attributive or connotative aspects of the meaning of the word would appear to be a process deemed to be academic, indeed superfluous). The fact that vegetables are considered to be ‘midori’

in colour can be seen from comments such as the following by Nagasaki (1977, p.205), who writes that:

...the best colours to use to make food look appealing are those of the red, orange and orange-yellow grouping and fresh midori. This is because these colours are associated with the natural colours of fruits and vegetables.

Kitahara (1997 pp.62-64) offers examples of several situations where JNS use the term 'ao' without the reference being to the colour blue (as 'ao' is generally understood to mean in present day Japan). He states, for example, that:

We (JNS) do use the turns of phrase 'he turned "ao"' and 'his face was bright red' but it simply isn't the case that, in the real world, the face actually goes 'ao' or is in fact bright red...Though we cognize of 'ao' and 'midori-iro' separately, there are times when we don't make a linguistic distinction. We simply use the term 'ao', on occasions, to express the colour green.

Kitahara (1997, p.55) also offers an example of 'ao' being used, not in reference to a colour denotational, but where the connotation of immaturity and being unripe is invoked:

There is the expression 'ao-ta gai' which was used very widely until the economic bubble burst. Of course the original meaning was to estimate the value of a rice crop before it came into seed and then make the purchase... In other words the reference was to purchasing...an 'ao' field (that is to say a padi field which was still 'ao' – rice turns a golden colour when its seeds ripen). People who grow up in the city surely would never think of an 'ao-ta' (field of unripe rice) as being actually 'ao' in colour when they use the expression 'ao-ta gai'. As for me, I was brought up in a rural village and when I hear the expression 'ao-ao to hirogaru tanbo' (spacious 'ao-ao' rice fields) it immediately conjures up images of open fields of green, healthy-looking rice plants. Though I've used the expression 'ao-ao to hirogaru tanbo', the mental picture I have of an 'ao-ta' is certainly not one which is 'aoi' in colour. It is one which is 'midori-iro' in colour. It would indeed be funny if it were otherwise.

A similar argument is made by Kitahara (1997, p.55) in relation to usages of the term 'ao' in classical literature. Reference has already been made to the poem of Sodo Yamaguchi (in the Kamakura period) which appears in passage 119 of the book *Tsurezureso*, a famous literary work of the Kamakura Period, and which reads:

Me niwa ao-ba, yamahotogisu, hatsu-gatsuo. (Ao-ba for the eyes, the wild cuckoo, the bonito of the season).

In reference to the actual colour of the leaves, Kitahara (1997, p.55) comments that:

It goes without saying that in this poem the expression 'ao-ba' refers to something which is fully midori-iro in colour. If the 'ao-ba' referred to were really 'ao' what a funny situation we would have. Clearly, the term 'ao' expresses the meaning of 'midori-iro'. There are numerous other examples which could similarly be cited.

It is obvious that there is an intricate relationship between the modern day usage of the Japanese colour term 'ao' and that of 'midori'. It is also clear that the history of the Japanese language has been instrumental in shaping this relationship. In investigating the semantic relationship between these terms Stanlaw (1987, p.109) suggests one would normally consider there would be four possible scenarios: firstly, that they be considered independent, discrete sets (i.e. without overlap), secondly that 'ao' be considered a sub-set of 'midori', thirdly, that 'midori' be considered a sub-set of 'ao' and finally that they be considered as independent but non-discrete sets (i.e. sharing an area of overlap). Stanlaw (1987, p.108) suggests the first possibility is discounted as grass (草'kusa') can be described using either the term 'ao' (utilizing the 'kun-yomi' of the characters: 青草'ao-kusa') or 'midori' (utilizing the 'on-yomi' of the characters: 緑草'ryoku-sou'), so these terms are not discrete and independent of each other. It is also not the case that every usage of 'ao' can be interchanged with 'midori', hence the second scenario is also discounted. Stanlaw states that:

'Midori no sora' (lit. a green sky) is normally unacceptable in Japanese for describing the usual blue sky of a sunny day (which normally would be 'aoi no sora' (sic) or 'ao-zora').

The fact that there is evidence that historically at least 'midori' was used to describe the sky in the literary classic Genji no Monogatari is treated as irrelevant and ignored as Stanlaw's reference is to contemporary Japanese. The third scenario is also ruled out because not all usages of 'midori' are interchangeable with 'ao'. Stanlaw mentions that the term for 'jade' ('hisui-iro') cannot be described using the term 'ao'. Thus the fourth scenario is the only one which can be considered possible. Stanlaw (1987, p.109) comments that:

Some referents can take both 'ao' and 'midori' terms, and presumably there is a range of hues which can take both terms (the empirical question being, how large is this overlap).

It is certainly the case that the terms 'ao' and 'midori', though not discrete (i.e. having some shared overlap area), do each attract things which can be described using only one of these two terms (see Chapter 5).

Traffic lights

The question of the colour and colour naming of Japanese traffic lights has received considerable attention in the literature (Leach, 1970; Gamst, 1975; Sahlins 1976a, 1976b; Stanlaw, 1987) and is a question deserving of attention in its own right. Accordingly I offer the following background to this aspect of the Japanese culture and language.

The first traffic lights in Japan were installed in Hibiya in Tokyo in May 1930. These were made in U.S.A. They were soon followed by Japanese made traffic lights which were installed in Kyoto in December of that year. According to the law at that time the colours of the traffic signals were officially deemed to be 'aka' (red), 'ki-iro' (amber) and 'midori' (green). It was the custom, however, to refer to the green light as 'ao' in accordance with the names of the 3 primary colours found in artists' paints 'aka', 'ki-iro' and 'ao'. According to the Japanese Traffic Bureau (2003, personal communication), the Japanese people felt no resistance calling the green light 'ao' as 'green things could traditionally be described using this term'. Eventually, in recognition of the fact that the custom of referring to the 'go' light as 'ao' was universal across the nation, the Japanese government, in 1956, changed the law so that 'ao' became the official name of the colour. The colour itself remained unchanged, however. This remained the situation until the early 1970s when calls were made to remove the perceived discrepancy between the colour reality and its nomenclature. One such call was made by Nishikawa (1972, p.92), who argued for the name of the 'go' light to be more closely aligned with the reality of the colour it referred to. He stated that:

the official road traffic regulations refer to the 'go' light as the 'ao-iro signal' but I simply can't go along with this. Whilst in the vernacular it may be referred to as 'ao', the officially sanctioned terminology should be 'midori' as that's what it is and the name should be changed accordingly.

Although Nishikawa's proposition called for the name of the traffic light colour to be aligned with the reality of the colour (his argument being that the green light

should be called 'midori'), the authorities in Japan decided to take the reverse approach and adjust the reality of the colour to align it more closely with the descriptor by which it was called. So well established was the tradition of referring to the 'go' light with the term 'ao' that it was felt that this should not change. Thus, in 1973, the Japanese government decreed that it would be appropriate to change the traffic light colour to the bluest hue possible which would still be acceptable as 'midori' under the terms of the international traffic light convention to which Japan is party. In making this decision, the Japanese government also cited the fact that the bluer hues were less problematic for colour blindness sufferers, in that 'ao' lights are more easily recognized by such people than green lights.

It is acknowledged that the modern traffic lights are 'not a perfect "ao" but a "midori" with "ao" mixed in' (Hosata 2003. personal communication). Since the mid 1970s Japan has been in the process of phasing in these 'ao' (bluish) coloured lights across the country. The situation at the present time, therefore, is that there is a mixture of 'go' traffic light colours; old signals being focal English green and the new ones being distinctly bluish. This fact would seem to contradict the claim made by Stanlaw (1989, p.27) that:

...the 'go' signal in Japan is labelled 'ao' (BLUE) even though their (sic) actual colour is the same as or similar to traffic lights in America (and have been since their (sic) introduction to Japan)...

In its publication 'Rules of the Road' (2003, p. 26, p.58), compulsory reading for those seeking to obtain a driver's licence in Japan, the Traffic Bureau of the Japanese National Police Agency includes colour illustrations of these new 'ao' traffic lights, portraying them as being unequivocally blue (Appendix 3.2). (The fact that there was no technical difficulty in producing the colour green in this publication is evidenced by the fact that in both the illustrations referred to the road verges are coloured green, in contrast to the blue colour of the 'go' signal). Furthermore, on p.25 of both the Japanese and English versions of this publication again we see a depiction of the 'ao-shingo' (this time involving a set of pedestrian signals) as being decidedly blue. This does not appear as odd to the JNS as the same illustration does to English speakers who feel the colour depicted is inappropriate in relation to the description provided, namely 'green light' or 'flashing green light' (appendix 3.3). It would appear that the situation regarding Japanese traffic lights offers support for the proposition that language can indeed affect culture.

Kitahara (1997, pp.60-61) agrees with the proposition put forward by the Japanese Traffic Bureau that the Japanese feel no resistance to calling the green light 'ao' because 'ao' encompasses the meaning 'midori-iro'. He contributes the following to the 'ao' vs 'midori' discourse in relation to the colour of traffic lights:

In the present age 'ao-iro' and 'midori-iro' are distinguished and cognized as being completely separate colours so it would seem reasonable to change the expression 'ao-ta' ('ao' field) into 'midori-ta' (green field) and 'ao-ba' ('ao' leaf) into 'midori-ha' (green leaf). This would result in more accurate expressions. If the argument were to be advanced that the expressions 'ao-ta' and 'ao-ba' have a historical basis for being in the language and that they shouldn't easily be tampered with, then what about expressions like 'ao-shingo' ('ao' traffic light)? This is a relatively new expression and one might think that it would be appropriate for it to be changed to 'midori-shingo' (green traffic light) in order to describe the colour it in fact is. This, however, is not the case. The colour green can be described using the term 'midori' and yet [in the case of traffic lights] we don't. Why is it that we use the term 'ao'? We live in an age when the colours 'ao-iro' and 'midori-iro' can be very clearly distinguished, yet why is it that we can use 'ao' to describe things that are 'midori' and not feel it is strange to do so? As far as the colours of the real world are concerned, we perceive 'ao-iro' and 'midori-iro' as separate entities. The colour spectrum of the real world is continuous and we are not able to differentiate where 'ao' starts and stops or where 'midori' starts and stops. Yet we do cognize of these categories separately and we label these cognitive categories as 'ao' and 'midori'. Things that we perceive as 'midori-iro' we are able to describe as 'midori-iro' and this is only natural. So why is it then that, despite this, we don't feel any resistance to using the expression 'ao' in describing green things? One of the reasons is that even in the present age the expression 'ao' encompasses the meaning 'midori-iro'.

If we accept the argument that some things that are green can be called 'ao', then what about the reverse situation? Nishikawa (1975, p.91) depicts three road signs (Appendix 3.4), one of which is blue but is described as being 'midori'. In discussing colours which stand out and which are consequently considered safe for use in road signs it is explained that the first sign indicates a need for caution (children crossing), the second one directs attention to a particular hazard (a pedestrian crossing) and the third one indicates the direction of traffic flow. The caution sign is described as having black figures on a yellow background. The pedestrian crossing sign is described as having a white figure on a 'midori' background while the sign indicating the direction of traffic flow is described as having white arrows on an 'ao' background. These combinations, Nishikawa suggests, maximize the visibility factor. I have broached the question of this particular nomenclature with a number of JNS. Their reactions varied

from considering the depiction of the road signs and/or the descriptions thereof to be ‘marginally acceptable’ to ‘unacceptable’ (indeed, the situation being claimed by some as ‘quite wrong’). It is indeed a most unusual situation to encounter things which are blue being described as being ‘midori’. Some of my JNS informants suggest that this situation could have resulted simply from a mistake made by the publishers, but others suggest that this would be unlikely, given that the 4th edition of the book was produced in 1975 with the colour plates and descriptions appearing unchanged from the original edition. Yet other informants suggest that the author’s lack of a clear distinction between blue and green in relation to this road sign could be explicated in terms of the ‘confusion’ involved in the use of the terms ‘ao’ and ‘midori’ in relation to traffic lights.

Western researchers’ interest in ‘ao’

Western linguistic researchers have been aware of the possible existence of a colour term in Japanese which historically described an area of semantic space which was ‘shared’ between (and encompassed both) blue and green, and which was thought to be of greater antiquity than the basic native colour term for green (‘midori’), since at least the time of Berlin and Kay’s watershed research of the late 1960s. In relation to the position the Japanese language played in terms of influencing discourse pertaining to the evolutionary sequence of colour terms, Berlin and Kay (1969, pp.42-43) made the following point:

Japanese ... presents a problem in relation, not to its current state, but to its internal reconstruction. On the basis of internal evidence, the term for Japanese ‘blue’, ao, is apparently of greater antiquity than ‘green’, midori (iro). Moreover, there is some evidence that ao once was extended over greens and blues. If this is the case, we have a situation where the unitary term GREEN (at Stage IV) has its focal point in blue and eventually reduces to blues exclusively with the latter appearance of the term for green (at Stage V). If these conjectures are borne out by further work, we will have no alternative but to treat Japanese as a counter example to the evolutionary sequence of the foci blue and green. However, alternative and equally plausible interpretations can be made which conform to the theory here presented. Final decision of the matter must await further research.

Earlier research into the colour term ‘ao’, conducted by Uemura and Yamazaki in 1943, was detailed by McNeill, (1972, p.28) who, in relating the source of some traditional Japanese colours, reported that

Ao (blue) was derived from an indigenous plant, ‘ai’. The colour obtained from this plant ranges from indigo to bluish green. Midori

(green) is also obtained from ai by adding a small amount of kariyasu (a yellow vegetable dye).

Most significantly, it was reported that Uemura and Yamazaki concluded that 'In Japanese all these colours are called ao'.

It is apparent from McNeill's (1972, pp.28-29) research findings that the contemporary 'ao' prototype, which I have identified conclusively as 'the sky' (Conlan 2003, pp. 77-78), would not have been considered to be a prototypical exemplar of 'ao' in ancient times. It would appear that a prototype shift has occurred in relation to this colour term. McNeill (1972, p.26) comments that 'to ancient Japanese turquoise is the representative example of the blue range which centres around English blue'. McNeill (1972, p.27) further states that 'ao' presents a case 'where a single colour name designates a wide variety of different hues'.

In seeking to map the meaning of 'ao' Wierzbicka (1996, p.313) suggests that:

a triple model, based on the sky (primary point of reference), the sea (secondary point of reference), and vegetation after rain (a tertiary point of reference) might seem to accord ...with the way 'ao' is used, and with informants' responses to it.

My research findings (Conlan, 2003, p73), however, indicate that in such a tri-categorization the tertiary point of reference should be traffic lights, as this was clearly the third most common 'ao' referent named by my JNS informants. It should be noted, also, that the 'triple model' suggested by Wierzbicka for mapping just how 'ao' is used, is denotational only and ignores the conceptual metaphor aspect (and possibly also the collocational linguistic compound aspect) of the use of this term.

The need Wierzbicka (1996, p.312) feels to qualify references to vegetation (with the phrase 'after the rain', for example) is a significant point of variance between the position she proposes and that which I have developed as a result of my research. Green vegetables, apples, moss, lawns and leaves were all suggested as 'ao' referents by the 65 JNS informants who participated in the word association component of this research, with no qualification stipulated from any of them – none suggesting that 'rain' (or any other notion of temporary or transitional status) need be involved at all (see Chapter 5).

While Wierzbicka (1996, p.312) suggests that 'there is a link between 'aoi-ness' and a possibility of change', Stanlaw (1997, p.256) takes the position that what the Japanese seem to encode in their use of 'ao' is the idea of 'starting' or 'beginning-ness'.

There may be certain configurations of culture-based, conventionalized background knowledge shared by JNS which endorse the existence of such a link for certain referents (or metaphoric or collocational usages of the term) under certain conditions. The results of my research (Conlan, 2003, p.74), however, indicate that this notion of ‘aoi-ness’ being linked to a ‘possibility of change’ or ‘beginning-ness’ should not be considered universal. The extent to which the use of ‘ao’ is conditional upon a notion of transitional status is proven in this study to be referent dependent.

Although Wierzbicka (1996, p.312) makes the argument that the Japanese language somehow distinguishes between ‘ao’ and ‘midori’ on the basis of there being a ‘reference to a transitory state’, she does not expand on this to discuss the domain of the immature, the unripe or the unsophisticated. She asserts that:

Clearly the reason (why ‘midori’ can be as an attribute of trees but ‘ao’ isn’t) is that midori is seen as a permanent property of trees, whereas aoi refers to a temporary state, or to a temporary visual impression.

Wierzbicka further reports (1996, p.312) that ‘Japanese has set phrases referring to both grass and traffic lights as ao’ and states that:

Where there is a need to contrast the colour of the sky with the colour of grass, a different colour adjective is used for grass: midori. But when there is no need for contrast aoi is used to cover many ‘greens’ (as well as all ‘blues’). Interestingly, however, the ‘best example’ of aoi is not in the middle of the range, but clearly in its ‘blue’ part; and in fact (according to my informants), it is unquestionably provided by the sky, ‘sora’ (‘aoi sora’).

This assertion accords with the results of the research presented in this dissertation (see Chapter 5). Similarly Wierzbicka’s claim that the most salient points of reference for JNS when describing the term ‘ao’ are the sky (‘sora’) and the sea (‘umi’) also accords with my findings (Conlan 2003, p.78).

Summary of Chapter 3

In this chapter ‘ao’ has been identified as one of the four oldest colour terms in Japanese. Its etymology (along with that of ‘aka’, ‘shiro’ and ‘kuro’) has been investigated and the orthographies of these terms have been reported on.

This chapter also reports on the interplay between ‘ao’ and ‘midori’ in relation to examples of their usage found in ancient literature and on the historical basis for the wider usage and higher level of salience enjoyed by ‘ao’ over ‘midori’, noting that ‘ao’

was used as a specific colour term from the turn of the second millennium and the appearance of the classical literary work *Genji no Monogatari*. An in-depth analysis of the role played by 'ao' (specifically in comparison with 'midori') in *Genji no Monogatari* is presented. The suggestion is made that 'midori', as a colour, is not as important to the Japanese culture as green is to Western culture and evidence is presented which suggests that the low level of salience of 'midori' identified in the oldest examples of written Japanese, persisted throughout subsequent centuries and indeed remains a feature of the Japanese language today. 'Ao', by contrast, is identified as being a more highly salient colour term which, to differing extents, is non-green/blue discriminating in both the historical and contemporary contexts.

A brief coverage of the history and meaning of colours and colour nomenclature in Japanese is provided on a chronological basis according to the recognized eras of Japanese history. It is reported that for the early Japanese 'ao' covered most blues and greens and had its focus in the area of the spectrum English speakers call 'turquoise'. It is further reported that the modern concepts of a) 'ao-midori' equalling turquoise and b) 'midori' being a 'good' green became part of the Japanese understanding of colour only after contact with Western culture.

Acknowledgment is made of the high level of salience of the term 'ao' in contemporary Japanese and evidence is offered which indicates that, while denotationally 'ao' and 'midori' may be described as being clearly distinguishable in modern Japan by certain Japanese linguists (and informants), certain traditional usages of 'ao' (which incorporate attributive and connotative aspects of the semantics of the term) remain as a legacy in the modern language. The question of the colour and colour naming of Japanese traffic lights is introduced and finally, contemporary research by Western linguists in relation to the term 'ao' is reported on.

CHAPTER 4

Rationale and Methodology

The methodology has been designed bearing in mind the overall aim of the research, determining the semantic boundaries of 'ao'. The term 'semantic boundaries' could be defined in many ways but in the present study will be interpreted as encompassing the following three component areas of investigation a) what the JNS understand by this term (as distinct from its semantic neighbours), b) how they use it and c) why they use it the way they do. Accordingly the data collection aspect of the research was designed to comprise three distinct components, corresponding to these areas of investigation, allowing triangulation of the research findings. The three component areas of investigation were: a word association task, an oral interview in which participants were asked to describe a number of images (coloured shapes of varying degrees of complexity and a variety of pictures containing blue and green referents) and finally a questionnaire which allowed the researcher to interpret the interview responses. Copies of these three elicitation instruments are presented in Appendices 4.1, 4.2 and 4.3. Different cohorts of JNS were used for each component of the research.

Word association is an established procedure in experimental research which has also been found useful in ethnographic research and which is described by Sharifian (2002, p.71) as 'a powerful technique employed by researchers in all the human sciences for more than a century'. In recent times it has been described by de Groot (1989); Stacy, Leigh and Weingardt (1997); Schmitt (1998); Bahar, Johnstone and Sutcliffe (1999); and Zeelenberg, Shiffrin and Raaijmakers (1999). This research employs the classical type of word association task, whereby informants are presented with a word as the stimulus and instructed to supply one or more words which come to mind. I chose a task of both the 'free association' and 'continuous word association' type, that is to say, the participant was presented with a stimulus word and requested to generate as many mental associations as he/she liked, up to the limit indicated for each item, with responses not being restricted to any specific category or class of words. This was conducted as a written exercise free of time limitations.

Part 1 of the research: Word association task to establish mental associations made with key colour terms and to investigate how these are discriminated

In the initial study it was sought to investigate the ‘ao’ schema by identifying the mental associations JNS made with this colour term and comparing and contrasting these with the mental associations made with ‘midori’, ‘buruu’ (blue) and ‘guriin’ (green). The aim was to investigate the relationship ‘ao’ has with these other colour terms by delineating areas of synonymy (shared semantic space) and areas of discreteness. In other words, the purpose of this first component of the research was to investigate how ‘ao’ interacts with these other colour expressions in terms of the mental associations made by JNS, thereby determining how these terms are interconnected and/or discriminated. In researching this it was intended to identify both the prototypical exemplars of each of these colour terms and the range of referents with which each of these terms allows mental associations to be drawn. The results of this component of the research would be used as a basis for determining the selection of contextualized images to be presented to the second cohort of JNS for description (in Part 2b). It would also be instrumental in the design of the questionnaire to be presented to the third cohort of JNS for assessment of the perceived level of appropriateness of ‘ao’ as a descriptor (in Part 3).

The literature review indicates that ‘ao’ is an older and more salient colour term (and one having a greater level of applicability) than ‘midori’, encompassing a broader area of the colour spectrum. The foreign loanwords ‘buruu’ and ‘guriin’ are reported as being comparatively very recent (20th century) adoptions into the language. In some instances the terms ‘midori’, ‘buruu’ and ‘guriin’ could be thought of as ‘competing’, as it were, for the semantic space occupied by (and originally the sole domain of) the term ‘ao’. Accordingly investigation of the schematic interaction amongst these various colour terms was considered highly relevant to this research.

Part 2 of the research: Oral interviews to observe colour term usage when describing both contextualized and de-contextualized samples of colours

Part 2a: Denotational colour term usage exercise

This part of the research focussed on de-contextualized colour samples and sought to investigate whether in contemporary Japanese ‘ao’ and ‘midori’ are clearly distinguished as blue and green when used denotationally [Part 2a (i)] and whether the contemporary usage of ‘ao’ as a colour term reflects its historical ‘dominance’ as described in the literature [Part 2a (ii)]. To this end the research sought to identify what

colour terms are used to describe samples of colours which would be considered clearly 'blue' or clearly 'green' by English speakers, as well as those which would be thought of as being 'indistinct' or 'in-between' colours. The aim here was to investigate how the term 'ao' is applied denotatively and to identify overlap, if and where it exists, with the denotative aspect of the terms 'midori', 'buruu' and 'guriin'. In addition to these terms, the responses 'mizu-iro' (light blue, literally 'water colour'), 'sora-iro' (light blue, literally 'sky colour') and 'ki-midori' ('yellow-green') were logged in order to allow comparison of usage.

The literature indicates that traditionally 'ao' had its focus in turquoise, that 'midori' primarily was a reference to plants (i.e. 'greenery'), and that the concepts of 'ao' being 'blue', turquoise being 'ao-midori' and 'midori' being 'green' are recent, post Meiji-era imports to the Japanese psyche. The literature also indicates that in modern Japan foreign loanwords are increasingly being accepted as colour terms. Accordingly, investigating how 'ao' relates to the colour expressions 'buruu' and 'guriin' in terms of denotational usage, was considered highly relevant to the overall question of identifying the semantic boundaries of 'ao'.

Certain samples of colours were presented in a set, but randomly mixed, order in a variety of shapes or shape combinations (the aspect of shape acting as a distractor mechanism). They were presented in isolation, in contrast with another colour(s) and contextualized. By recording the colour terminology used to describe the sample colours when presented in different environments, it was proposed to examine the extent to which 'ao' is used denotatively by contemporary JNS.

Part 2b: Empirical colour term usage exercise involving the description of colour samples presented in a contextualized environment

The literature indicates that there are both denotative and associative (in particular connotative) aspects to the usage of 'ao' and that this term, although categorically described as (and equated with) 'blue' in certain textbooks, can be used in some circumstances to describe things which English speakers would unequivocally consider to be green.

Part 2b (i) of the research sought to establish how the term 'ao' is used empirically when JNS describe pictures, some of which contextualize the colour samples described in 2a above. The contextualized examples of colour usage (i.e. pictures) were randomly mixed with the de-contextualized samples of colour (presented in a variety of shapes and shape combinations) and shown to JNS informants in a fixed

order (Image No.1 through to Image No. 64). Informants were instructed to describe the images freely. Part 2b (ii) of the research endeavoured to determine if the choice of colour descriptor was contextually dependent, and to thus gain an insight into the associative (including connotative and collocative) meanings ascribed to contextualized usages of 'ao'. In investigating how, in terms of empirical usage, 'ao' relates to other colour expressions, its contextualized usages were compared and contrasted with those of the 'overlapping' colour terms of 'midori', 'buruu' and 'guriin'. As in Part 2a the responses 'mizuiro', 'sora-iro' and 'ki-midori' were also logged in order to allow a comparison of usage.

Part 3 of the research: Questionnaire based research to allow interpretation of the results delivered by Parts 1 and 2b (above)

The purpose of the third aspect of the research was to elicit informants' judgments of the appropriateness of the use of 'ao' as a descriptor for a range of stated referents and to investigate the reasons why JNS would choose to use the term 'ao' when describing these. A questionnaire, a well-established ethnographic elicitation instrument, was used to assist in understanding and interpreting the responses to the word association exercise (Part 1) and the picture description exercise (Part 2b) and to investigate the basis for the JNS judgments in this regard. The questionnaire was informed, but not prescriptively bound, by the responses received from the word association aspect of the research (Part 1). Comments and feedback provided by participants in the oral interviews (Part 2) were also instrumental in informing its design. The linguistic analysis of the data obtained in this part of the research involved approaches within the traditional framework associated with Haugen (1950, 1972) and Weinreich (1963) and from the perspective of semantic field theory (Kittay 1987, Kittay and Lehrer 1992, Lehrer 1974). Part 3 of the research sought to investigate the basis for the 'ao' reference, looking at not only its denotational, but also its associative (including collocational and connotative) usages.

The literature indicates that, although 'ao' historically embraced a wider frame of reference than is the case for contemporary Japanese, modern JNS still accept the use of 'ao' as a descriptor for a variety of things which sometimes surprise and confound speakers of English. Through the use of a heuristic questionnaire I sought to determine the criteria by which 'ao' is deemed appropriate as a descriptor by JNS.

Interrelationship of the component parts

The approach adopted for this research required the co-ordination of three interrelated methodological component parts. Together these triangulated the study, bringing together information pertaining to my research question from different perspectives and acting to assist in the attainment of my research goal, namely to ‘discover the insider’s view of reality’ (Johnson 1992, p.142) in relation to the ‘ao’ schema as it is cognized and defined by JNS. The components of the research were designed to elucidate the following areas of interest central to this research

- a) a word association task: what the JNS understand by the term ‘ao’,
- b) oral interviews: how they use this term empirically (denotatively and associatively) and
- c) a questionnaire on the perceived appropriateness of ‘ao’ as a descriptor: why they use it the way they do.

The word association exercise, (Part 1), sought to determine the mental associations JNS make with the term ‘ao’ and how these interact with the mental associations made with ‘midori’, ‘buruu’ and ‘guriin’. Prototypical exemplars for each of these colour terms are identified, as are areas of synonymity and discreteness. The referents mentioned by participants in the word association part of the research (Part 1) informed the central elicitation instrument used in the oral interview component (Part 2), as well as the questionnaire component (Part 3). The considerable cross-over between colour term usage (for ‘ao’, ‘midori’, ‘guriin’ and ‘buruu’) and the idiosyncratic nature of responses to Part 1 prompted the creation of an elicitation instrument which would test how these colour terms were used empirically (Part 2b).

The oral interviews allowed the researcher to investigate a) if JNS clearly distinguish ‘ao’ and ‘midori’ denotatively, and b) how they refer to ‘in-between’ colours. The empirical usage of ‘ao’ (and the associated terms ‘midori’, ‘buruu’ and ‘guriin’) was investigated, by eliciting descriptions of decontextualized colour samples (Part 2a) and pictures representing contextualized colour samples (Part 2b), some of which contained samples of the same colours presented for naming as decontextualized entities in Part 2a. Informants’ responses to Part 2b (indicating natural usage) were compared to the responses received when the samples were presented in a decontextualized environment. By this means the question of whether or not the issue of contextual dependency was involved in the JNS selection of colour terminology was

investigated. Throughout the oral interviews informants were asked simply to describe what was shown to them, without attention being drawn to the researcher's aim of observing the use of colour descriptors. Responses received in relation to other frequently encountered terms ('mizu-iro' [light blue], 'sora-iro' [light blue] and 'ki-midori' [yellow-green]) were also recorded.

Finally, a questionnaire was employed to shed light on the underlying 'ao' cognitive schema which prompted the responses received from both the word association exercise (Part 1) and the picture description element of the oral interview (in Part 2b).

Data gathering procedure Part 1: Mental Association Exercise

Elicitation instrument

The word association instrument consisted of a cover sheet explaining the purpose of the research and the format of the exercise. It explained that there was no time restriction and requested informants to complete the task section by section, not returning to a section once a subsequent section had been commenced. Participants were asked to make their own mental associations without discussing answers with others or thinking too deeply.

The research employed cognitive linguistic techniques (involving conceptual association) to elicit best examples of things associated with the terms 'ao', 'midori', 'guriin' and 'buruu' by JNS. It sought to identify both good and bad category members, as defined by prototype theory (see Ungerer and Schmid, 1996, p.19, Rosch, 1978, p.36), described by these terms. The research aimed to establish the nature of the cognitive schemas associated with these terms by obtaining intuitive and non-contextualized goodness-of-example referents for them.

Informants were required to write down ten referents they associated with the character 'ao'. As distractors, two similar exercises (in relation to randomly chosen and unrelated concepts) were provided on the first page of the exercise, with five responses being sought for each. Responses to the distractors did not form part of the research and were ignored by the investigator. Subsequent exercises again called for participants to write down any associations they made when shown the foreign loan words 'buruu' and 'guriin' (written in the appropriate native script) and then finally the character 'midori'. Five responses were sought for each of these terms. As with the character 'ao',

appropriate distractor exercises were mixed in. The association test was set out with the instructions being repeated for each individual item.

Word association exercise instructions:

What mental associations do you make when you look at the character/expression given below?

Table 4.1

Expressions presented in the word association exercise

It should be noted that a) items other than ‘ao’, ‘buruu’, ‘guriin’ and ‘midori’ were distractors and b) the Romanization and English translations provided here did not form part of the questionnaire.

犬	‘Inu’ (Dog)
焼く	‘Yaku’ (Burn)
青	‘Ao’
ペルー	‘Peruu’ (Peru)
ブルー	‘Buruu’ (Blue)
ウィーン	‘Uiin’ (Vienna)
グリーン	‘Guriin’ (Green)
男	‘Otoko’ (Man)
男性	‘Dansei’ (Male)
緑	‘Midori’

The study sought to rank the associative meanings which the subjects identified with their personal cognitive schemas for ‘ao’, ‘midori’, ‘guriin’ and ‘buruu’ according to their overall frequency of appearance across the cohort of informants as a whole. By this means lists of the most commonly mentioned referents were drawn up.

This elicitation instrument is supplied as Appendix 4.1.

Delivery procedure

Participants were briefed about the fact that this exercise formed part of my PhD research and the conditions of the ethics agreement I had entered into with the Committee for Research Involving Human Subjects at Edith Cowan University were explained. Consent forms specifically designed for this study were then given to willing

participants for signing. On one occasion a group of 19 participated simultaneously. For all the other informants participation was on an individual basis.

Participants were provided with a desk in a quiet location, the 'Renso Geemu' (word association exercise) sheet to be filled in and a pen. The investigator allowed informants to take as much time as they wanted. It was explained that the exercise was not a measure of individual performance and that the investigator was not interested in participants' identities. Information concerning the informants' gender, age and place of birth was requested on a voluntary basis. The exercise was conducted at a variety of venues selected according to the convenience of the informants.

The test was conducted completely in Japanese. The characters 'ao' and 'midori' were written in kanji (i.e. Chinese ideographs) as Leong and Tamaoka (1998) suggest that the cognitive processes involved in retrieving the meaning of an expression are likely to be intrinsically different when accomplished directly from orthography (kanji) as opposed to being mediated through phonology (the kana syllabary). Furthermore, Yamada (1998) reminds us that in Japanese colour names are usually presented in kanji in everyday written communication. Important also, is the fact that writing these expressions in kanji allowed informants to readily offer associational referents involving character combinations containing the characters for 'ao' or 'midori'. Consequently some responses, although written with the kanji 'ao' employ its alternative reading, 'sei'. As kanji signify meaning, unlike kana (the native Japanese scripts) which are phonographical and not ideographical, it is the character, as opposed to any particular phonological representation of it, which awakens the cognitive schema universal to the properties of the semantic domain it embraces. The foreign loanwords 'buruu' and 'guriin' were, of necessity, rendered in phonographical kana.

Participants

The word association exercise was given to JNS who were drawn from a cross section of the Japanese community in Perth and certain Japanese nationals living in Christchurch, New Zealand. As Japanese nationals it was considered that all informants were appropriate culture bearers.

The respondents included employees of the Japanese Consulates-General in Perth and Christchurch (New Zealand), members of the 'Nadeshiko' Japanese choir (mostly long term residents of Perth who are middle-aged or elderly ladies), students of the Language Academy in Wellington Street, Perth (all in their teens or twenties), visitors to the Nichigo Centre in Murray Street, Perth (young, short-term tourists),

occasional members of the Japanese language teaching fraternity at secondary and tertiary level in Western Australia and chance contacts the investigator made at Edith Cowan University in Perth.

Both genders were represented (19 males and 46 females) with the age spread ranging from people in their teens to people in their 80s. The age distribution was: teens (3), 20s (25), 30s (11), 40s (10), 50s (9), 60s (4), 70s (2) and 80s (1). Informants were from all parts of Japan. They hailed from the following prefectures: Tokyo (13), Chiba (6), Osaka (5), Hyogo (5), Fukuoka (4), Hokkaido (3), Kumamoto, Yamagata, Aomori, Shizuoka, Kanazawa, Kanagawa, Iwate and Kyoto (2 each) and Okayama, Gifu, Nagano, Hiroshima, Gunma, Saitama, Kagoshima, Saga, Tokushima, Yamanashi, Shimane, Shiga and Fukushima (1 each).

In total 65 JNS participated in this part of the research. On all occasions only JNS who had set aside sufficient time to allow completion of the exercise (i.e. without time concerns relating to subsequent appointments) were selected as participants.

Data gathering procedure Part 2: Oral interview

Elicitation instrument

The elicitation instrument for the oral interviews consisted of a total of 62 images comprising 50 sheets of A4 paper, some with decontextualized samples of colours in isolation, some with decontextualized samples of colours in contrast with other colours and some with colour samples contextualized (pictures) and 12 colour photographs copied one per page. Oral descriptions were elicited for each of the images shown. The purpose of this aspect of the research was to determine the JNS selection of colour descriptors (specifically in relation to the terms 'ao', 'midori', 'buruu' and 'guriin') in both contextualized and decontextualized environments.

The decontextualized colour samples included some which would be considered clearly 'blue' or clearly 'green' by English speakers as well as some which would be considered 'indistinct' or 'in-between' colours. In several instances (listed below) one and the same colour sample was shown more than once, but in different environments - that is to say, decontextualized and in isolation, decontextualized and in contrast with another colour sample(s), and in context, as part of a picture.

A variety of shapes was employed in presenting the decontextualized colour samples, to draw attention away from the researcher's aim of noting colour terminology used. Similarly distractors were mixed in with the contextualized colour samples

(pictures and photographs). Responses given to the distractors were ignored by the researcher.

There was no time limit set and informants were encouraged to continue with their descriptions until they felt it appropriate to move on to the next image.

The contextualized colour samples (pictures) were randomly mixed in with the decontextualized samples and were presented to informants in a fixed sequence. Contextualized samples included representations of the flags of Italy and France, pictures of green eyes, blue eyes, seedlings, peas, traditional Japanese garments, the face of the Kamakura statue of Buddha, an apple, a frog, Japanese pedestrian traffic signals, green mould, a lawn, a rice field, the ocean, the sky, a bamboo forest, Mallard ducks, leaves, virgin forest, moss, an underwater picture, vegetables (including the beefsteak plant ['shiso']), a green caterpillar, a bruise, the sea of Okinawa, grapes, tomatoes, T-shirts, snakes, veins, seaweed, capsicums, toffee apples, chillies, kiwi fruits, an avocado, bananas, coils of rope, Australian traffic lights, fruit salad and a newly picked strawberry with calyx attached. Many of these items, while green in colour, had been identified as being associated with the term 'ao' in Part 1 of the research.

Information on the decontextualized colour samples used as stimulus material is given below, the bracketed number indicating the image (item) number as presented to informants.

A turquoise colour (originating from Image No. 40, bottom left) appears by itself (1), with blue (7) and with green (15).

The blue colour of the background mountains (33) appears with pale blue and green (4).

The sky colour in (32) appears with blue and green in Image (4) and with the colour of the sea (as depicted in Image No. 44) in (5).

The sea colour (44) appears with light blue (5), by itself (6), with green (22) and with blue (29).

The colour of the apple (9) appears with the traffic signal (17).

The colour of Buddha's nose appears by itself (14), with blue (2) and with green (19).

The traffic light signal appears by itself (20), with green [apple] (17), with blue (24) and again with green [rice field] (28).

Several of the images employed in this component of the research contained more than one referent of interest, and each has been dealt with separately. Image No. 24, for example, consists of two small triangles, the descriptions of each of which are of interest to this research. Similarly, Image No. 27 depicts a frog and vegetation, both of which are of interest. In all cases every relevant descriptor mentioned by informants was recorded.

It was not the case that every informant referred to every referent once and once only. In some instances the colour of the referent of interest was not referred to, while in others it was referred to more than once using different colour terms. The sky in Image No. 33 (the rice field), for example, was referred to by only a relatively small number of informants. The blue vein cheese depicted in Image No. 31, on the other hand, was described using three different colour terms by three informants (Informants nos. 8, 10 and 22). There were many instances of referents being described using two colour terms. Accordingly the total number of colour references made for any given referent varies.

This elicitation instrument is supplied as Appendix 4.2.

Delivery procedure

Participants were briefed about the fact that this exercise formed part of my PhD research and the conditions of the ethics agreement I had entered into with the Committee for Research Involving Human Subjects at Edith Cowan University were explained. Consent forms specifically designed for this study were then given to willing participants for signing. On all occasions only JNS who had set aside sufficient time to allow completion of the exercise (i.e. without time concerns relating to subsequent appointments) were selected as participants. Oral interviews were conducted on an individual basis and generally took approximately 45 to 55 minutes each. The longest interview took approximately 90 minutes. It was explained that these would be orally recorded and that the recordings would be erased after the period I had agreed to with the ethics committee of Edith Cowan University.

Participants were interviewed under the quietest conditions practicable. The investigator allowed informants to take as much time as they wanted to respond to the stimulus material, sometimes interjecting remarks seeking clarification where the

responses received were either ambiguous, otherwise not clear or not familiar, or alternatively to make the exercise more interactive.

It was explained that the exercise was not a measure of individual performance and that the investigator was not interested in participants' names. Information concerning the informants' gender, age and place of birth was recorded on a voluntary basis, all informants providing this information readily. The exercise was conducted at a variety of venues selected according to the mutual convenience of the investigator and informants. Usually this was a quiet room in a building, however some of the interviews conducted in Japan took place under less 'clinical' circumstances, for example with elderly folk and children in parks, with fellow passengers on long distance train journeys and in hotel foyers with front desk employees during the 'graveyard shift' after midnight. In one instance, in Miyazaki City, the interview was conducted with the proprietor of souvenir shop on the afternoon of a cold and quiet trading day in winter. The interviews were conducted completely in Japanese.

Participants

A total of 45 interviews were conducted with JNS, 24 in Western Japan and Tokyo and 21 in Western Australia. The age of participants ranged from 11 years to 79 years. They hailed from the length and breadth of Japan. Interviews were conducted mostly in Miyazaki, Kagoshima, Hiroshima, Kyoto, Tokyo and Perth. There were 26 male and 19 female informants who hailed from the following prefectures: Miyazaki (7), Kagoshima (6), Hyogo, Osaka (4 each) Nagasaki, Hiroshima, Nagano, Tokyo (3 each), Kanagawa, Kagawa, Saga (2 each) and Ibaraki, Fukuoka, Chiba, Wakayama, Ehime, Shizuoka (1 each). The age distribution was: teens (4), 20s (14), 30s (9), 40s (3), 50s (4), 60s (3), 70s (7) and 80s (1).

Only JNS who indicated they were free from time pressures at the time of the interview were selected as participants.

When seeking informants willing to be interviewed I followed the golden rule of ethnography as laid down by Werner and Schoepfle (1987, p. 245): 'Treat everyone as a potential consultant'. Thus the subjects informing this study include a muddy-kneed 11 year old boy who was interviewed in a playground in Kagoshima, high school students in their late teens, a 24 year old Catholic nun from the Goto islands in Nagasaki, a 24 year old man from Osaka who was interviewed on the train from Kagoshima to Kumamoto, a number of smartly attired hotel reception desk personnel in Hiroshima, Kyoto and Tokyo who were in their 20s and 30s, a 47 year old father of 3 from Ehime, a

51 year old fisherman from Miyazaki, a number of university lecturers from Nagano and elsewhere in their 50s and 60s, two married couples in their 70s (with individuals hailing from Saga, Osaka, Tokyo and Shizuoka), a 74 year old nun from Nagasaki and a 79 year old retired heart surgeon from Sasebo. Comments in relation to the reasons for the choice of colour descriptor or its perceived level of appropriateness were often elicited automatically during oral interviews. Such comments were specifically requested in the questionnaire which formed the third component of the research.

Data gathering procedure Part 3: Questionnaire

Elicitation instrument

Items employed in this elicitation instrument were selected on the basis of either a) their being concrete items used in the elicitation instrument in Part 2 (for example a rice field, bamboo and traffic lights) b) their having been offered, in Part 1 of the research, as having a mental association with 'ao' but not incorporated into the selection of images used in the elicitation instrument in Part 2 (for example, abstract concepts such as 'peace of mind', 'freshness/zest', 'a sense of being settled/relaxed' and 'coldness') or alternatively c) items to which reference was made during the course of the oral interviews (for example, 'Christmas trees', 'processed seaweed', 'an unwell face' and 'green sea turtles').

Information concerning the gender, age and place of birth of informants was requested on a voluntary basis on the cover page of the questionnaire, which sought information concerning JNS judgments on the suitability or otherwise of 'ao' as a descriptor for 40 given referents. In each case the instructions given were:

Can (name of item) be described using the term 'ao (i)' or ('aoao toshiteiru')? If your answer is 'no' move onto the next page. If your answer is 'yes' how appropriate is that term to describe it in your opinion? Indicate your answer on the scale from 1 (highly appropriate) to 5 (totally inappropriate).

Under what circumstances would 'ao' be appropriate? Please write the reason you would use this term.

If another colour term could also be used what is it and how is it differentiated from 'ao'?

One expression only was given on each page of the questionnaire. Expressions were presented in kanji, hiragana and katakana, as appropriate, in accordance with established orthographical traditions. Furigana, or the reading of the character in

hiragana, was supplied where it was thought necessary (e.g. for kanji not commonly encountered and which not all informants would have been expected to recognize). The questionnaire design was informed by the responses received in Parts 1 and 2 of the research, the referents offered for appraisal being given in Table 4.2, here with English translations provided for explanatory purposes. The exercise was conducted entirely in Japanese.

Table 4.2

Referents offered for appraisal in Part 3

空	the sky	黴	green mould
海の亀	green sea turtle	りんご	Apples
しそ	the 'shiso' leaf	海	the sea
海苔	'nori' processed edible seaweed	森	Forests
ぶどう	grapes	竹	bamboo
血管	veins	虫	green caterpillar
もみの木	Christmas trees	蛙	green frog
砂浜	a beach	バナナ	green banana
たんぼ	rice field	芝生	lawns
苔	moss	落ち込んだ状態	feeling depressed
お日さま	the sun	寒い	cold
葉っぱ	leaves	ひげをそった後	newly shaven face
わかめ	'wakame' unprocessed edible seaweed	落ち着いた状態	The situation of being settled

痣	bruise	爽やか	Refreshing
交通信号	traffic signals	安心	peace of mind
蛇	a snake	木	a tree
山	mountains	水	water
草原	grassy plains	顔	face/complexion
野菜	vegetables	若者	young people
目	eyes	鴨の頭	duck's head

The aim was to investigate a) the degree of suitability JNS deem ‘ao’ to have as a descriptor for a variety of given referents and b) the reason(s) for this determination. A Likert scale was used to record participant judgment of the level of appropriateness, graded from 1, for the most appropriate, to 5, for the least appropriate. Informants were required to circle ‘yes’ or ‘no’ as to whether the term ‘ao(i)’ (or ‘aoao toshiteiru’) was judged to be applicable to the given referent, and if the answer was ‘yes’, to proceed with the questions on that page. If the answer was ‘no’ they were directed to move onto the next page. Where responses were in the affirmative, comments were invited as to why this judgment had been made, if another colour term could also be used and if so, on what basis the distinction between the terms was made. The given referents included a number of distractors (such as ‘a beach’ and ‘the sun’), the responses to which were ignored and did not form part of the research.

This elicitation instrument is supplied as Appendix 4.3.

Delivery procedure

As for the other components of the research, participants were briefed about the fact that this exercise formed part of my PhD research and the conditions of the ethics agreement I had entered into with the Committee for Research Involving Human Subjects at Edith Cowan University were explained. Consent forms specifically designed for this study were then given to willing participants for signing.

Participants who were able to complete this task in the presence of the researcher were provided with a desk in a quiet location, the questionnaire to be filled out and a pen. The investigator allowed informants to take as much time as they wanted. It was explained that the exercise was not a measure of individual performance and that the investigator was not interested in participants' names.

The questionnaire was administered at a variety of venues selected according to the convenience of the informants. Due to the length of the questionnaire some informants chose to take it home and complete it in their own time. The exercise was conducted completely in Japanese. A number of the questionnaires were distributed and collected by Dr Debra Occhi of Miyazaki International College, acting as a data collection assistant. These were forwarded on to the investigator by post.

Participants

A total of 66 informants participated in this aspect of the research, 50 females and 16 males. They hailed from the following prefectures: Kagoshima (25), Miyazaki (14), Fukuoka and Miyagi (5 each), Fukushima (3), Saitama, Yamaguchi, Okinawa, Saga, Mie, Okayama, Kumamoto, Osaka, Chiba, Kanagawa, Aomori, Iwate, Tochigi and Hiroshima (1 each). The age distribution was: teens (18), 20s (22), 30s (1), 40s (4), 50s (10), 60s (10) and 70s (1).

Only JNS who indicated they were free from time pressures at the time of the interview were selected as participants.

Data analysis

The collected data were analysed by the investigator in the following ways:

For Part 1, the associations made with each of the four colour terms 'ao', 'buruu', 'guriin' and 'midori' were noted and the total number of instantiations of each association recorded. By this means the prototypes and fields of semantic reference for each colour term were established. Then the referents were tabled against the four colour terms in order to establish the areas of shared semantic interest, that is to say a comparison of shared colour terms according to referents was drawn up. From this it was possible to identify the combinational possibilities and non-possibilities (what I have referred to as 'colour term partnerships') governing the JNS use of the said colour terms.

For Part 2, oral responses (descriptions) received in relation to the stimulus material were analyzed and the use of colour expressions noted in order to establish the

terminology used to describe colour samples displayed in differing decontextualized environments (and thus the degree of denotational distinction made by JNS in regard to blue and green), noting the effect of contextualization on the choice of colour terminology. Audio recordings of the informants' descriptions of the stimulus material were made and instantiations of colour term usage logged and classified under the headings 'mizu-iro', 'sora-iro', 'ao', 'midori', 'guriin', 'buruu', 'ki-midori' and 'other', with the gender and age bracket (teens, 20s, 30s, 40s, 50s, 60 or 70s) of the respondent for each instantiation being noted. As previously mentioned, the total number of responses for each referent varied as there was neither compulsion for respondents to make reference to colour in relation to every image, nor indeed for them to restrict their reference to colour to a single instantiation per referent. Accordingly some informants' descriptions of the images presented as stimulus material didn't include reference to colour (there were, in fact, only a small number of such cases) while others incorporated two or more descriptors. In cases where two or more references to colour were made, each was regarded as an instantiation in its own right and logged accordingly. This principle was followed for all stimulus material images, regardless of whether the colour sample contained therein was contextualized (i.e. presented as an element in a picture) or decontextualized (i.e. removed from its original pictorial context and presented as a shape). For each image the total number of colour references is provided, together with the number of instantiations for each of the colour terms, expressed both numerically and in percentage terms. For ease of comprehension, bar graphs indicating the percentage breakdowns were provided for each item. The results obtained for certain colour samples presented in isolation were then compared to the results obtained when the same colour samples were presented in contrast with another colour sample and when presented in a contextualized environment (i.e. as part of a picture). The usage of 'ao' as a descriptor for each of the contextualized items in the stimulus material was investigated and reported on to determine how 'ao' is used empirically and the extent to which its use as a descriptor is contextually dependent.

The information gathered in Part 3 of this research was used to interpret the results obtained in Parts 1 and 2. The level of suitability of 'ao', as perceived by JNS as a descriptor for a variety of referents, was investigated (using a Likert Scale) and the reasons offered for the judgments made in this regard were examined in order to interpret the results obtained in Parts 1 and 2 of the research. By this means the investigator triangulated the study and sought to map the 'ao' cultural schema.

Summary of Chapter 4

The term 'semantic boundaries' can be defined in many ways but in the present study it is interpreted as encompassing the following three component areas of investigation a) what the JNS understand by this term, b) how they use it and c) why they use it the way they do. Accordingly the data collection aspect of the research was designed to comprise three distinct components, corresponding to these areas of investigation, allowing triangulation of the research findings. The three component areas of investigation were: a word association task, an oral interview in which participants were asked to name colour samples and describe pictures and finally a questionnaire which allowed the researcher to interpret the responses received to the oral interview and word association exercises.

Part 1 of the research: Word association task to establish mental associations made with key colour terms and to determine how these are discriminated.

Part 2 of the research: Oral interviews to observe colour term usage when describing both contextualized and de-contextualized samples of colours.

Part 3 of the research: Questionnaire based research to allow interpretation of the results delivered by Parts 1 and 2.

The collected data were analyzed by the investigator in the following ways:

For Part 1, the mental associations made with each of the four colour terms 'ao', 'buruu', 'guriin' and 'midori', and the number of instantiations of each were recorded, thus allowing the identification of prototypes. A chart indicating the comparison of shared colour terms according to referents was drawn up. From this it was possible to identify what I have referred to as the 'colour term partnerships' governing the use of these colour terms.

For Part 2, oral responses received in relation to the stimulus material were transcribed and analyzed in order to establish the terminology used to describe colour samples displayed in both contextualized and decontextualization environments.

The information gathered using the questionnaire in Part 3 was used to interpret the results obtained in Parts 1 and 2. The level of suitability of 'ao', as perceived by JNS, as a descriptor for a variety of referents and the reasons offered for the judgments made in this regard were examined. By this means the conditions determining the suitability of 'ao' as a descriptor were investigated and recorded.

In summary the questions deriving from this methodological approach can be given as follows:

Part 1. The word association test

- how does 'ao' interact with its 'rival' colour expressions, 'buruu', 'guriin' and 'midori', in terms of the mental associations made by JNS?
- what are the prototypical exemplars of each of these colour terms and the range of referents with which each of these terms allows mental associations to be drawn?

Part 2a. The oral descriptions of decontextualized colour samples

- do contemporary JNS clearly distinguish between the use of 'ao' and 'midori' to describe blue and green respectively?
- is there evidence of the continuation of the traditional dominance of 'ao' over 'midori' described in the literature?

Part 2b. The oral descriptions of contextualized colour samples

- how is 'ao' used empirically?
- is the use of colour descriptor contextually dependent?

Part 3. Questionnaire

- how appropriate do JNS perceive 'ao' to be as a descriptor for a variety of given referents?
- what is the basis upon which JNS make such judgments?

CHAPTER 5

Mental associations Japanese native speakers make with the terms 'ao', 'buruu', 'guriin' and 'midori'

In this chapter I provide a description of the elicitation instrument used for the word association task (relating to the four terms 'ao', 'buruu', 'guriin' and 'midori'). The data obtained by using this instrument are then analyzed semasiologically (thus identifying prototypical exemplars for each of these colour terms) and onomasiologically (thus revealing areas of shared semantic reference and areas of exclusive semantic reference). Finally, conclusions are drawn in relation to the possible combinational patterns (or 'colour term partnerships') identified for the abovementioned colour terms.

Part 1 of the research: Word association task to establish mental associations made with key colour terms and to investigate how these are discriminated

Through the use of questionnaires given to JNS, a most intricate and complex relationship existing between the term 'ao' and the terms 'buruu', 'guriin' (the English loanwords 'blue' and 'green') and 'midori', (all colour terms which 'compete', as it were, for the same semantic space claimed by 'ao') was identified. Informants were asked to provide referents for these four colour terms. The results were then analyzed semasiologically (that is, to identify the range of referents covered by a single descriptor) and onomasiologically (to do the reverse and identify the various descriptors that can be used to describe a given referent).

In prototype theory, the level of agreement between speakers of a language in relation to the degree of similarity between the recognized prototype and other members of a category is customarily described in terms of 'good' and 'bad' examples of category membership (see Ungerer & Schmid 1996, p.39, Rosch, 1978, p.36). Cognitive linguistic techniques (involving conceptual association) were employed to elicit the best examples of things associated with the terms 'ao', 'midori', 'guriin' and 'buruu' by JNS and both 'good' and 'bad' category members described by these terms were identified. The research sought to determine what the criteria are by which JNS distinguish the use

of 'ao', 'buruu', 'guriin' and 'midori' and to investigate the informant variables (gender and age) associated with the selection of these terms. It further aimed to establish the nature of the cognitive schemas associated with these terms by obtaining intuitive and non-contextualized goodness-of-example referents for them.

The instructions provided with the questionnaire simply asked informants what associations they made when they looked at the characters/expressions provided. The characters were presented in such a way as to not make it obvious that the researcher's interest lay in the domain of colour. Distractors were coupled with significant questionnaire items (e.g. for rhyming purposes Peru with blue and Wien with green) to 'throw informants off the scent', as it were.

The test was conducted completely in Japanese, with the colour names being orthographed in kanji, in accordance with common practice as identified by Yamada (1998, p.271). Accordingly, associational referents involving character combinations containing the characters for 'ao' and 'midori' (and sometimes read as 'sei' and 'ryoku' respectively) were readily demonstrable. The words 'buruu' and 'guriin' were orthographed in the phonographical katakana script.

The study sought to rank the meanings (both denotative and associative) which the informants identified with their personal cognitive schemas for 'ao', 'midori', 'guriin' and 'buruu'. Lists of the most commonly mentioned referents were drawn up.

Semasiological analysis of the questionnaire results in relation to 'ao'

A total of 65 questionnaires (from 29 male and 36 female respondents) indicating the mental associations JNS made with the term 'ao' formed the basis for this part of the investigation. The most frequently offered responses (irrespective of the item's ranking by individual respondents) are given in the table below.

Table 5.1

Prototypes and good and bad examples of ‘ao’

‘Ao’ prototypes	‘the sky’ (55) and ‘the sea’ (54)
‘Ao’ good example	‘traffic lights’ (19)
‘Ao’ bad examples	‘water’ (11), bracing/invigorating/freshness (‘sugasugashii/sukkiri/sawayaka’)(10), beautiful/pretty (8), young (8), apples (7), ‘buruu’ (7), adolescence (‘seishun’)(7), the colour ‘ao’ (7), restful/mentally settling (5), to feel cold (5), cold to the touch (5), youths (‘seinen’) (5), mountains (4), the planet Earth (4), birds (4), an artist’s tubes of paint (4), (early) summer (4), a bruise (3), young leaves (3), rivers (3), hairless caterpillars (3), to go pale (3), cleanliness (‘seiketsu’) (3), lakes (3), red (3), peaceful/quite (2), edible seaweed (2), spacious outdoors (2), southern lands (2), grass (2), lawns (2), forests (2), tattoos (2), clouds (2), jeans (2), darkness (2), eyes (2), indigo (2), vegetables (2), the ‘ao-daisho’ snake (2), fruit or vegetables which have an ‘unripe/grassy’ smell (2) and veins (2)

‘Ao’ prototypes

In accordance with the observation by J. Taylor (1995, p.45) that ‘when asked to name examples of a category people tend to mention prototypical members first’, it was determined that the ‘sky’ and ‘the sea’ should be considered ‘ao’ prototypes, as these referents were very often ranked either first or second by informants. Occasionally these were the only things mentioned (when respondents chose not to offer more than two examples of things with which immediate associations were made). For JNS ‘the sea’ and ‘the sky’ are ‘ao’ prototypes despite the fact that they are very often observed to fail to display prototypical hues.

With nearly one in three informants recording ‘traffic lights’ on the questionnaire, this item was the third most popular response received, despite being mentioned as the first choice of association by only one informant. Consequently ‘traffic lights’ can perhaps be considered to be an item of borderline candidacy for ‘ao’ prototypicality.

It is possible that the sky and the sea are high contenders for immediate association with ‘ao’ (and possibly thus ‘ao’ prototypicality) partly as a result of the numerous linkings of the term ‘ao’ with references to the ‘sora’ (sky) and ‘umi’ (sea) in Japanese songs. In the Japanese version of the Sound of Music song ‘Do-Re-Mi’, for example, the line ‘sew, a needle pulling thread’ becomes (‘so, wa aoi-sora’), thus linking ‘aoi’ and ‘sora’ very naturally. Furthermore, it would appear that, for JNS, there is some evidence to suggest that there is a strong associative relationship between ‘the

sky’ and ‘the sea’, as in almost all cases where one was mentioned it was immediately followed by the other (of the 48 respondents who mentioned both these items 40 mentioned them in immediate succession).

The table below describes the patterns by which the two most popular items recorded by respondents were listed and gives the number of responses recorded for each pattern.

Table 5.2:

‘Ao’ prototype listing patterns

<u>Listing pattern</u>	<u>Number of responses recorded</u>
sky ranked 1st, sea ranked 2nd	29
sky ranked 1st, sea elsewhere	7
sea ranked 1st, sky ranked 2nd	5
sea ranked 1st, sky elsewhere	3
sky then sea ranked in sequence but not in 1st and 2nd positions	5
sea then sky ranked in sequence but not in 1st and 2nd positions	3
only sky mentioned	4
only sea mentioned	4
neither sky nor sea mentioned	5

Clearly there was broad agreement amongst respondents that the sky (‘sora’) and the sea (‘umi’) were representative of the colour ‘ao’. These were overwhelmingly (with 34 respondents ranking these items first and second, either order), although not universally (18 respondents ranked neither ‘sea’ nor ‘sky’ first and 9 ranked neither ‘sky’ nor ‘sea’ either first or second), the focal denotative responses.

It was noted that some responses were embellished, with expressions like ‘the Australian sky’ and ‘the sky in Perth’ being found. These were included in the general category ‘the sky’. Likewise, responses such as ‘the deep sea’ were categorized indifferentially with ‘the sea’.

While there would appear to be a strong associative relationship between ‘the sky’ and ‘the sea’ (their being named in immediate succession, regardless of order, by 42 respondents), there were four respondents who mentioned ‘the sky’ but didn’t mention ‘the sea’ and similarly four who mentioned ‘the sea’ without mentioning ‘the sky’. Interestingly, however, although clearly ‘the sky’ and ‘the sea’ were the most common responses found, there were five respondents who cited neither of these.

The responses received which indicated an attributive aspect of the term ‘ao’ are listed below in the order of frequency encountered:

bracing/invigorating/freshness (10), cold (10 in total: 5 ‘cold to the touch’ [‘tsumetai’] and 5 ‘to feel cold in oneself’ [‘samui’]), youthfulness (8), the springtime of life, one’s youth (‘seishun’) (7), a youth (‘seinen’) (5), calm and mentally settling (5), sickness (a pale complexion/ ‘to go green’) (3), cleanliness (‘seiketsu’) (3), spacious (outdoors) (3) and peaceful (2).

Semasiological analysis of the questionnaire results in relation to ‘buruu’

A total of 57 questionnaires (25 male and 32 female respondents) were given out which included the term ‘buruu’.

The order of frequency in which the responses were encountered is given below.

Table 5.3

Prototypes and good and bad examples of ‘buruu’

‘Buruu’ prototypes	the sky (29), the sea (including qualifications such as ‘the Mediterranean Sea’ or ‘deep sea’) (26)
‘Buruu’ good examples	feeling down/depressed (17), ‘ao’(9), feelings (8), sad/unhappy (5), colour (4), Hawaii (4), clear/water/water-coloured (4), cobalt (3), train (3), to feel cold (‘samui’) (3), jeans (3), eyes (3), sapphire (2), a car (2), paint (2), marine blue (2), blue ribbon (2), freshness (2), unpleasant (2)
‘Buruu’ bad examples	traffic lights, loneliness, spaciousness, cold to the touch, blueberry, Blue Hawaii, summer, bad-tempered, cheese (1 each)

It was noted that, amongst the responses in this category, there were several foreign loan terms (‘gairaigo’) of English origin which contained the word ‘blue’. These were: Blue Hawaii, Blue Mountain, blue moon, blueberry, bluebird, blues and blue ribbon. In addition, the response ‘Buruu-su Rii’ (Bruce Lee) graced the completed questionnaire of one respondent!!

(In discussing the effects of polysemy for Japanese katakana words, Hino et al. (1998, p.395) considered the question of whether the retrieval of word meanings was accomplished directly from orthography or mediated by phonology. The association of Bruce Lee (‘Buruu-su Rii’) with blue (‘buruu’) would suggest that, certainly in some cases, phonology is involved.)

Semasiological analysis of the questionnaire results in relation to ‘guriin’

A total of 57 questionnaires (25 male and 32 female respondents) were given out which included this term.

The order of frequency in which the responses were encountered is given below.

Table 5.4

Prototypes and good and bad examples of ‘guriin’

‘Guriin’ prototypes	forests (and jungle) (29), lawns (14), ‘midori’ (11), trees (10), leaves/young leaves (10), traffic lights (9), Japanese nature (9)
‘Guriin’ good examples	peace (6), freshness (5), grass (5), a grassy plain (5), green peas (5), mountains (5), an emerald (5), parks/gardens (5), summer (4), plants (4), the sea (4), eyes (4), a colour (3), tea (3), the song ‘green green’ (3), ecology/environment (3), golf (3), paint (2), precious stones (2), a name (2), spring (2), stone (2)
‘Guriin’ bad examples	a coral reef, serenity, moss, pot plants, peace of mind, safety, marine plants, spaciousness, apples, the ‘green carriage’ (first class) of the Bullet train, pasture land, lettuce (1 each)

It was noted here also that, amongst the responses in this category, there were some foreign terms of English origin. These were: green island, Greenland, green card and Green Beret.

Interestingly, no informant supplied the referent ‘guriin kaa’, a term created by JNS from the English words ‘green’ and ‘car’, and used to mean the first class carriage of the ‘shinkansen’, or Bullet Train. When informally questioned after the exercise about the non-inclusion of this term, several informants responded that it was not an inappropriate usage of the term ‘guriin’, as the sense of ‘freshness’ associated with the high speed train was in keeping with the image the term ‘guriin’ conveyed. ‘Midori’, on the other hand, was not described as a ‘fitting’ term to be used in this instance, as the sense of tradition associated with it was somewhat incompatible with the image of technological achievement which the Bullet Train portrays. This suggestion accords with the findings of Stanlaw (1987, p.438), who makes reference to an ‘appeal to image’ in determining whether or not English loanwords should prevail over native colour expressions. In relation to this particular Japanese expression, he states that ‘the image of the loanword ‘green car’ is good while the native Japanese colour term ‘midori no kuruma’ is not’.

Semasiological analysis of the questionnaire results in relation to ‘midori’

A total of 23 (13 male and 10 female respondents) questionnaires were given out which included this term.

The order of frequency in which the responses were encountered is given below.

Table 5.5

Prototypes and good and bad examples of ‘midori’

‘Midori’ prototype	forests (8)
‘Midori’ good examples	girl’s name (6), parks/gardens (5), traffic lights (4), lawns (4), spring (3), trees (3), leaves (3), grass (3), mountains/hills (3), colour (3), vegetables/spinach (3), guriin (2), crayons (2), ‘midori no obasan’ (traffic warden) (2)
‘Midori’ bad examples	tea (‘ryoku-cha’), indoor plants, safety, happiness, peace of mind, pot plants, freshness, paint, emeralds, grassy plains, serenity, summer, the sea, nature, ‘midori no hi’ (environment day) (1 each)

Subsequent to the questionnaire a number of informants were informally asked about the non-appearance of the very common expression ‘midori no madoguchi’, or ‘green counter’ (information section) which is a prominent feature of any large JR railway station. Responses generally suggested that the traditional Japanese custom of providing hospitality (whether in a commercialised setting or otherwise) by offering a ready, reliable, welcome service to the visitor or traveller was compatible with the ‘traditional’ image ‘midori’ projected. Although referred to by a relatively small number of respondents in the questionnaire, several informants later commented that the role played by the term ‘midori’ in the expression ‘midori no madoguchi’ was akin to that which it played in the expression ‘midori no obasan’ (traffic warden) insofar as there was a sense of peace of mind associated with the referent in question. ‘Guriin’, it was thought, projected something of a different image which would not be fitting in this instance.

Areas of shared semantic space

It is clear from the results that considerable ‘cross-over’ exists in the cognitive schemas which JNS employ in relation to the four colour terms ‘ao’, ‘buruu’, ‘guriin’ and ‘midori’. The many and complex areas of shared term usage are given by the Table 5.6. Referents which were associated with only one of the colour terms have not been included in the table.

Table 5.6**Comparison of shared colour terms by referents**

Referent	ao	buruu	guriin	midori
forest	*		*	*
tree			*	*
leaves	*		*	*
lawn	*		*	*
grass	*		*	*
grassy plain			*	*
spacious	*	*	*	
mountains	*		*	*
moss	*		*	
tea			*	*
pot plants			*	*
vegetables	*			*
apples	*		*	
water	*	*		
freshness	*	*	*	*
serenity			*	*
peace of mind	*		*	*
safety	*		*	*
summer	*	*	*	*
the sky	*	*		
the sea	*	*	*	
coral reef	*		*	
colour	*	*	*	*
cobalt	*	*		
traffic lights	*	*	*	*
paint	*	*	*	*
feelings	*	*		
sadness	*	*		
cold	*	*		
precious stone	*		*	
emerald	*		*	*
eyes	*	*	*	
jeans	*	*		
spring			*	*
	ao	buruu	guriin	midori

Variables

Gender, age and length of absence from Japan were the variables against which this study was conducted. Interestingly, these variables appeared to play an insignificant role in determining responses. Of the 16 respondents (8 male, 8 female) who suggested

a mental association between 'buruu' and 'feeling down', for example, 9 had been away from Japan for a period of less than 12 months, 3 had been away for between 1 and 7 years and 4 had been away for between 8 and 17 years. Similarly, of the 5 respondents (3 male, 2 female) who drew a mental association between 'buruu' and 'loneliness/sadness' the time spent away from Japan was: less than 1 year (2), 1 year to 5 years (2) and 17 years (1). Gender, age and one's home prefecture in Japan did not prove significant in terms of affecting responses. This study, while inconclusive, would seem to indicate that language change in relation to the semantic embrace of the terms 'ao', 'buruu', 'guriin' and 'midori' is not being led by a generational factor.

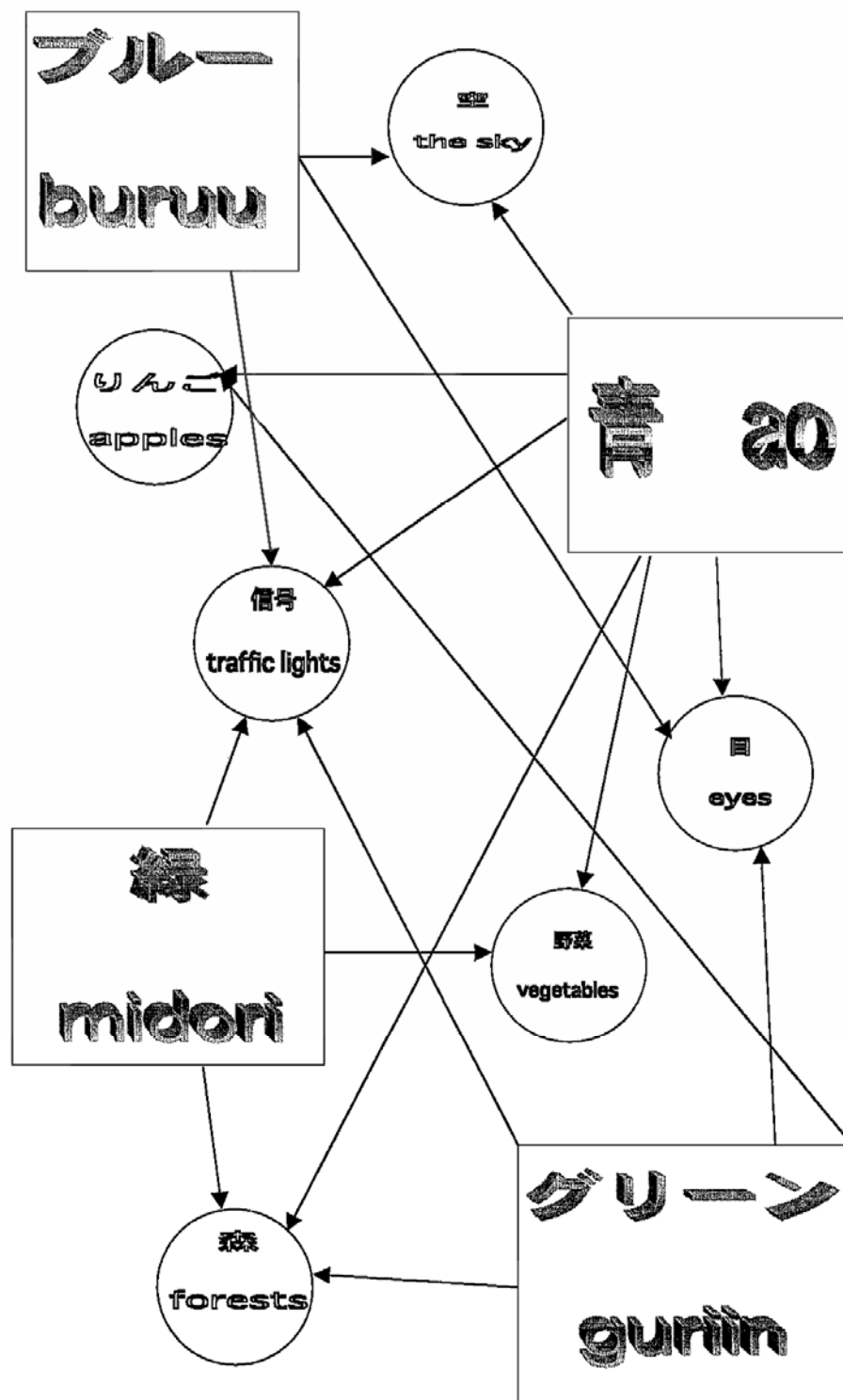


Figure 5.1: Semasiological/ onomasiological analysis of 'ao', 'buruu', 'guriin' and 'midori' and selected referents for which shared colour terms are possible.

Colour term combinational possibilities and non-possibilities

In looking at both the prototypical configurations and a broad range of referential possibilities which JNS associate with the four colour terms ‘ao’, ‘buruu’, ‘guriin’ and ‘midori’, this study reveals that each of these terms has a metaphorical aspect. It is clear, also, that there are both overlapping patterns and blockages on these overlapping patterns at work in the various ways these colour terms are applied by JNS.

It is possible, from the analyses presented, to identify certain combinational patterns, both criss-crossing possibilities (see below) and non-possibilities (nothing, for example, was identified which could be alternatively described as ‘ao’, ‘buruu’ or ‘midori’ but not ‘guriin’. Similarly, there were no instances where ‘buruu’ and ‘guriin’ were ever used in partnership to describe something without their being affiliated with either ‘ao’ or ‘midori’ or both).

In terms of the onomasiological perspective, that is, determining what range of colour terms can be used to describe a given item or concept, the results of this study indicate that there is often not only a very considerable overlapping of applicable colour terms, but also considerable variance to be observed in descriptor choice between individual JNS. Depending on both the informant and the item being described, different combinations of colour terms were shown to be deemed acceptable as descriptors. The sky and the sea, for example, were mentally associated with ‘ao’ by 55 and 54 respondents respectively (out of the total of 65), making them clear prototypes for this item. The study, however, identified 13 respondents (20% of the total corpus) who either mentioned only one of these or who mentioned neither. Moreover, whilst 54 respondents linked the sea to ‘ao’, there were 24 linkages to ‘buruu’, 3 to ‘guriin’ and 1 to ‘midori’.

This evidence is entirely in accord with the findings of others (e.g. MacLaury, 1995) who researched idiosyncratic colour term usages and interpretations by speakers of a common language.

The research identified several examples of ‘colour term partnerships’ and these are outlined below:

Apples can be ‘ao’ or ‘guriin’, but nothing else.

The sky can be 'ao' or 'buruu', but nothing else.

Vegetables were described as 'ao' or 'midori', but nothing else.

Eyes can be 'ao', 'buruu' or 'guriin' but not 'midori'.

Mountains can be 'ao', 'guriin' or 'midori', but not 'buruu'.

Traffic lights and the concepts of 'summer' and 'freshness' can be generally described using all four terms 'ao', 'buruu', 'guriin' and 'midori'.

Certain referents were found to fall within the exclusive domain of a particular colour term. The concept of 'going pale/being unwell' ('ao-zameru', 'aoi-kaō') was only ever associated with 'ao', while 'being sad' ('sabisii') and 'depression/despondency' ('yuutsu', 'ochikomu') were associated only with 'buruu'. 'Peace' ('heiwa') was associated exclusively with 'guriin' and the response 'a girl's name' was found exclusively in relation to 'midori'.

This study indicates that there are entailment relationships and blockages operating on these relationships which together govern the JNS choice of these colour terms.

It would appear that the foreign loan terms 'guriin' and 'buruu' have been thoroughly integrated into the existing semantic system of the Japanese language as, with just one identifiable exception, these words do not carry the meaning expressed in the source language into the host setting. The exception would be the association between the expression 'buruu' and the notion of 'sadness/feeling down'. By comparison, the term 'guriin' does not appear to carry the connotation of 'incomplete growth' or 'lack of experience'. This connotation is embraced by the native term 'ao'.

The semantic boundary of 'ao' allows for the inclusion of the exemplars 'youths' and 'apples', which do not have any obvious common attributes. The contention that for many categories of natural language it is just not possible to abstract a schema which is compatible with all the members of the category would appear to be borne out by this study. Other 'ao' category members, such as 'ao-zora' (blue sky), 'ao-mushi' (green caterpillar), 'ao-shingo' (green traffic light) and 'ao(i)-umi' (blue sea), on the other hand, indicate a shared reference to a clear colour denotational.

This study indicates that 'ao' acts as the domain against which 'ao-mushi' (green caterpillar) and 'sei-shun' (youth) are understood, and it suggests that these items, together with others such as 'ao-ba' (green leaves) etc., each extract their meaning by

highlighting a particular configuration in the 'ao' domain. It would appear that its instantiations activate the 'ao' schema, and that there perhaps isn't a schema for 'ao' independent of its referents. The evidence presented would suggest that Langacker's (1987, p.22) contention that the whole (in this case 'ao' as the metaphorical carrier of all its senses) might well be perceptually and cognitively simpler than any of its individual parts (in other words that the parts are understood in terms of the whole, rather than vice versa), is empirically justifiable. It appears that JNS can understand 'ao' in the context of the sky ('ao-zora') independently of their acceptance and understanding of it in other expressions such as 'ao-mushi' ('ao' caterpillar) and 'ao-ringo' ('ao' apple), where the colour association is unequivocally in the green area of the spectrum.

Summary of Chapter 5

Through the use of questionnaires given to JNS, a most intricate and complex relationship existing between the term 'ao' and the terms 'buruu', 'guriin' (the English loanwords 'blue' and 'green') and 'midori', (all colour terms which 'compete', as it were, for the same semantic space claimed by 'ao') was identified. The respondents in this, the 'word association' aspect of the research, comprised a cross section of the Japanese community in Perth, Western Australia, together with certain Japanese nationals living in Christchurch, New Zealand. Both genders and a broad range of ages were represented.

Informants were asked to provide referents for the abovementioned four colour terms, the results being analyzed semasiologically (that is, to identify the range of referents covered by a single descriptor) and onomasiologically (to do the reverse and identify the various descriptors that can be used to describe a given referent). Prototypical configurations of each of these four colour terms were identified.

There was broad agreement amongst respondents that the sky ('sora') and the sea ('umi') were considered representative of the colour 'ao' by JNS. Hence these referents were identified as 'ao' prototypes (despite the fact that they are very often observed to fail to display prototypical hues). 'Traffic lights' were identified as being the third most popular item associated with the term 'ao'. For the expression 'buruu', also, 'the sky' and 'the sea' were identified as being prototypes, while 'feeling down' was the third best example of a mental association made with this term. The prototypical exemplars of the term 'guriin' were identified as being 'forests', 'lawns', 'trees', 'leaves' 'nature' and 'traffic lights'. For 'midori' the prototype was identified as being 'forests'.

It is clear from the results presented in this chapter that considerable ‘cross-over’ exists in the cognitive schemas which JNS employ in relation to the four colour terms under investigation. The many and complex areas of shared term usage are identified, thus pointing to the existence of overlapping patterns (and blockages on these) which operate cognitively and which act to determine the JNS choice of descriptor. While the analysis of the questionnaire results makes it possible to identify the existence of certain combinational patterns (which I have referred to as ‘colour term partnerships’), it also indicates that some referents fall within the exclusive domain of a single colour term. Moreover, it is revealed in this chapter that each of the terms ‘ao’, ‘buruu’, ‘guriin’ and ‘midori’ has a metaphorical aspect and that there is variance between the connotations carried by the foreign loan terms ‘buruu’ and ‘guriin’ in their source (English) and host (Japanese) languages.

In terms of the onomasiological perspective, it is reported that the research results indicate there is often not only a very considerable overlapping of applicable colour terms, but also considerable variance to be observed in descriptor choice between individual JNS.

Evidence is provided which indicates that the semantic boundary of ‘ao’ allows for the inclusion of exemplars which do not have any obvious, common attributes. In other words, ‘ao’ acts as the domain against which expressions such as ‘ao-mushi’ (green caterpillar) and ‘sei-shun’ (youth) are understood. It is suggested that these items, together with others such as ‘ao-ba’ (green leaves) and ‘aoi-umi’ (blue sea), each extract their meaning by highlighting a particular configuration in the ‘ao’ domain and that, for JNS, different referents stimulate different aspects of the ‘ao’ schema. In other words, JNS appear to understand ‘ao’ in the context of the sky (‘ao-zora’) independently of their acceptance and understanding of it in other expressions such as ‘ao-shingo’ (‘ao’ traffic light) and ‘ao-ningo’ (‘ao’ apple).

CHAPTER 6

Data analysis and interpretation

Part 2 of the research: Oral interviews to observe colour term usage when describing both contextualized and de-contextualized samples of colours

Part 2a: Denotational colour term usage exercise

Pt 2a (i). Are 'ao' and 'midori' clearly distinguished as blue and green when used denotationally?

In order to consider the question of whether, in de-contextualized situations, contemporary JNS clearly differentiate 'ao' and 'midori' (and if so how that differentiation compares to the distinction English speakers make in relation to blue and green), the colour terminology employed by JNS when describing images which contain clear examples of what would be termed 'blue' by English speakers and images which contain clear examples of what would be termed 'green' by English speakers was investigated.

The images which contain de-contextualized samples of what is indisputably blue (for ENS) are: Image No. 2 (LHS), Image No. 4 (the middle band), Image No. 7 (LHS) and Image No. 29 (the point). De-contextualized colour samples which are indisputably green are provided in Image No. 4 (base), Image No. 15 (the oblong), Image No. 19 (LHS) and Image No. 28 (bottom).

The results of the research, based on the total numbers of instantiations of the colour nomenclatures used as descriptors, have been categorized under the headings 'mizu-iro' [light blue – literally 'water-colour'], 'sora-iro' [light blue – literally 'sky-colour'], 'ao', 'midori', 'guriin', 'buruu', 'ki-midori' [yellow-green] and 'other', and expressed in tabular form in both number terms and percentages. The percentages have, additionally, been represented as bar graphs, in order to furnish a readily comprehensible visual representation of the results. This eight-fold matrix for the categorization of colour nomenclature has been used throughout Parts 2a and 2b of the research.

Table 6.1 Clear blues.

Description: split oblong (LHS)

Total no. of instantiations: 45

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M:1	M: 0	M: 17		M: 0		M: 1		M: 6		M: 0		M: 0	
F: 1	F: 1	F: 14		F: 0		F: 0		F: 4		F: 0		F: 0	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens	Teens	Teens 4		Teens		Teens		Teens		Teens		Teens	
20s 1	20s	20s	14	20s	20s	20s	20s	20s	1	20s	20s	20s	
30s	30s	30s	7	30s	30s	30s	30s	30s	1	30s	30s	30s	
40s 1	40s	40s		40s	40s	40s	40s	40s	2	40s	40s	40s	
50s	50s 1	50s	3	50s	50s	50s	50s	50s		50s	50s	50s	
60s	60s	60s	1	60s	60s	60s	60s	60s	2	60s	60s	60s	
70s	70s	70s	2	70s	70s	70s 1	70s	70s 4		70s	70s	70s	
Percentage	4.44%	Percentage	2.22%	Percentage	68.88%	Percentage	0%	Percentage	2.22%	Percentage	22.22%	Percentage	0%

Split Oblong (LHS)

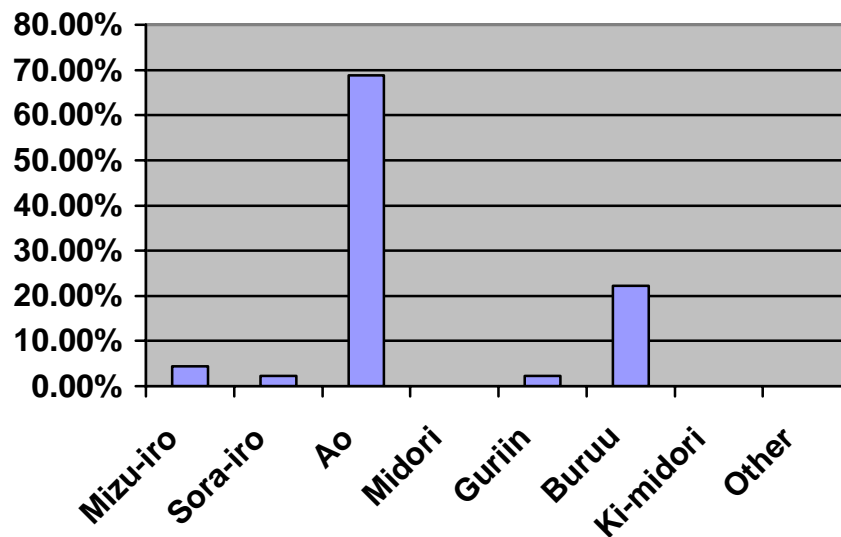


Table 6.2 Image No. 4

Description: tri-coloured triangles (middle)

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other*
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 3	M: 1	M: 15	M: 0	M: 2	M: 6	M: 0	M: 2
F: 2	F: 0	F: 14	F: 0	F: 0	F: 1	F: 0	F: 2
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s	20s	20s 15	20s	20s 1	20s	20s	20s 1
30s 3	30s	30s 5	30s	30s	30s 1	30s	30s
40s 1	40s	40s	40s	40s	40s 1	40s	40s 1
50s	50s	50s 2	50s	50s	50s	50s	50s 2
60s	60s	60s 1	60s	60s	60s 2	60s	60s
70s 1	70s 1	70s 2	70s	70s 1	70s 3	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
10.64%	2.13%	61.70%	0%	4.26%	14.89%	0%	8.51%

* includes 'wakakusa-iro' (young grass colour) (1)

Tri Coloured Triangles (middle)

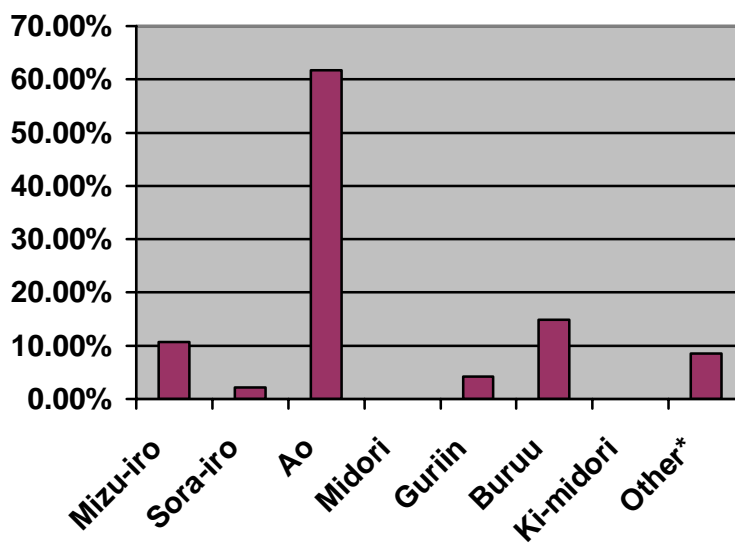


Table 6.3 Image No. 7

Description: 'slipping triangles' (LHS)

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other*
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 5	M: 0	M: 13	M: 0	M: 1	M: 7	M: 0	M: 0
F: 2	F: 0	F: 16	F: 0	F: 0	F: 4	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s 2	20s	20s 12	20s	20s	20s 1	20s	20s
30s 2	30s	30s 6	30s	30s	30s 1	30s	30s
40s 1	40s	40s 1	40s	40s	40s 2	40s	40s
50s	50s	50s 4	50s	50s	50s 1	50s	50s
60s	60s	60s	60s	60s	60s 3	60s	60s
70s 2	70s	70s 2	70s	70s 1	70s 3	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
14.58%	0%	60.42%	0%	2.08%	22.92%	0%	0%

'slipping triangles' (LHS)

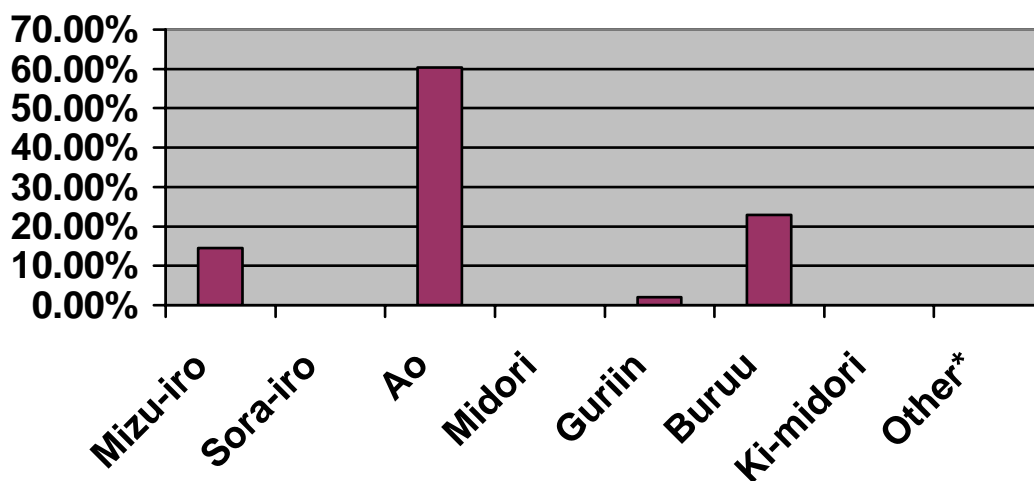


Table 6.4 Image No. 29

Description: triangle on its side (point)

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 14	M: 0	M: 1	M: 3	M: 0	M: 9
F: 0	F: 0	F: 13	F: 0	F: 1	F: 2	F: 0	F: 6
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s	20s	20s 11	20s	20s	20s	20s	20s 5
30s	30s	30s 6	30s	30s	30s	30s	30s 3
40s	40s	40s	40s	40s	40s 2	40s	40s 1
50s	50s	50s 3	50s	50s	50s	50s	50s 1
60s	60s	60s 1	60s	60s	60s 2	60s	60s 1
70s	70s	70s 2	70s	70s 2	70s 1	70s	70s 4
Percentage	0%	Percentage 55.10%	Percentage 0%	Percentage 4.08%	Percentage 10.20%	Percentage 0%	Percentage 30.61%

* includes 'murasaki' (purple) (7), 'kon' (navy blue) (3), 'ai-iro' (indigo colour) (3), 'ao-murasaki' (1) and 'ao-midori' (1)

Triangle on its side (point)

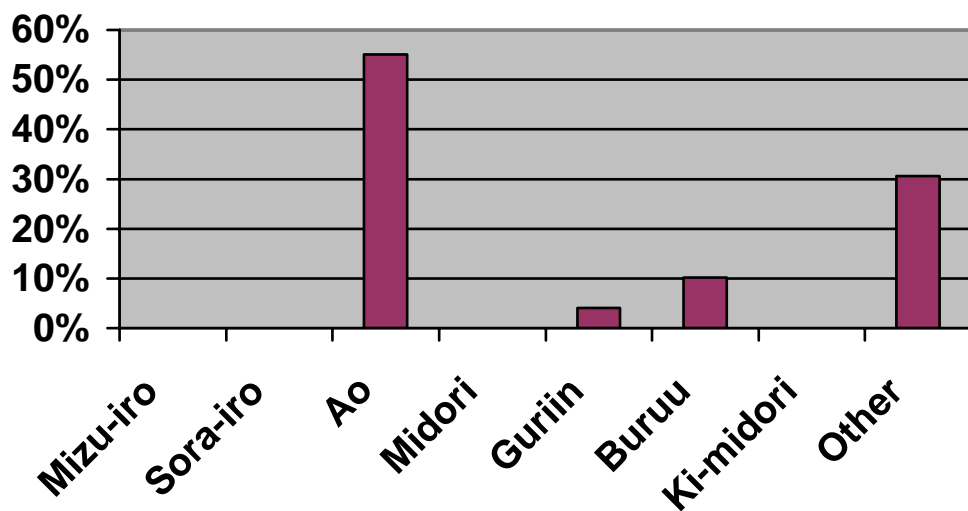


Table 6.5 Clear greens Image No. 4

Description: tri-coloured triangles (bottom)

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M : 0	M: 0	M: 0	M: 22	M: 3	M: 0	M: 1	M: 0
F: 0	F: 0	F: 0	F: 12	F: 2	F: 0	F: 3	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	20s 14	20s	20s	20s 1	20s
30s	30s	30s	30s 6	30s 1	30s	30s 2	30s
40s	40s	40s	40s 1	40s	40s	40s 1	40s
50s	50s	50s	50s 3	50s	50s	50s	50s 1
60s	60s	60s	60s 3	60s	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
0%	0%	0%	77.27%	11.36%	0%	9.09%	2.27%

Tri-coloured Triangles (bottom)

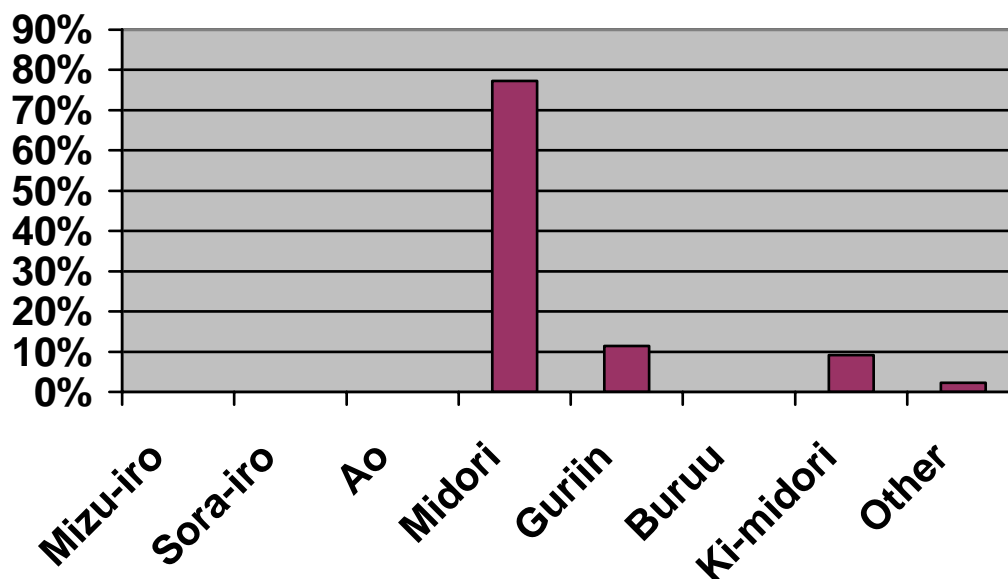


Table 6.6 Image No. 15 oblong

Description: oblong with triangle in corner (oblong)

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 1	M: 0	M: 1	M: 13	M: 3	M: 1	M: 5	M: 1
F: 0	F: 0	F: 1	F: 9	F: 5	F: 0	F: 7	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 2	Teens	Teens	Teens 2	Teens
20s	20s	20s 1	20s 10	20s	20s	20s 5	20s
30s	30s	30s	30s 5	30s 1	30s	30s 2	30s
40s	40s	40s	40s 2	40s 1	40s	40s 1	40s
50s	50s	50s	50s	50s 1	50s	50s 2	50s 1
60s	60s	60s 1	60s	60s	60s 1	60s	60s 1
70s 1	70s	70s	70s 3	70s 5	70s	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
2.08%	0%	4.16%	45.83%	16.66%	2.08%	25.00%	4.16%

* 'kusa-iro' (grass-coloured) (2)

Oblong with Triangle in Corner

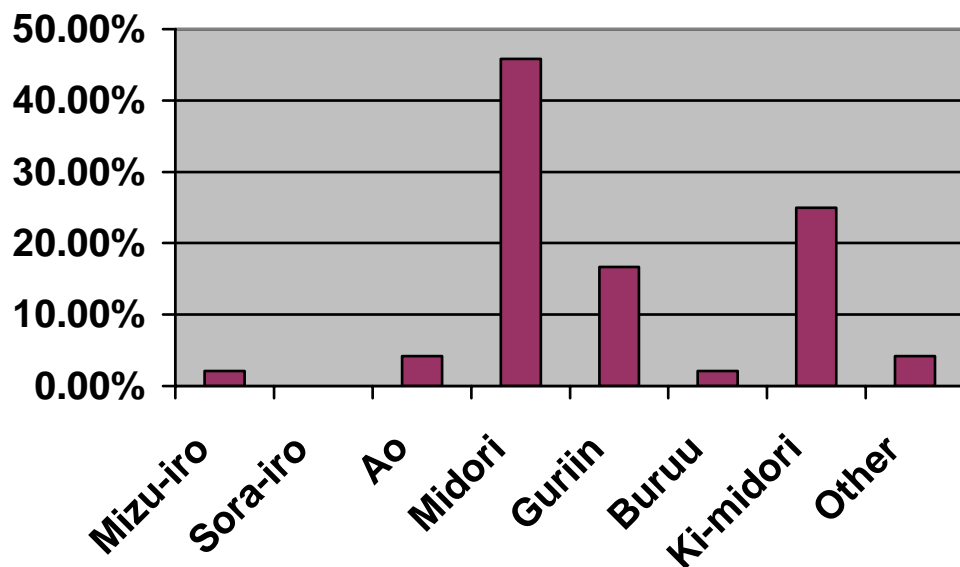


Table 6.7 Image No. 19

Description: oblong (LHS)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 1	M: 0	M: 0	M: 17	M: 4	M: 0	M: 2	M: 1
F: 0	F: 0	F: 0	F: 14	F: 5	F: 0	F: 2	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	20s 14	20s	20s	20s 1	20s
30s	30s	30s	30s 5	30s 2	30s	30s 2	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s	50s 2	50s 1	50s	50s 1	50s 1
60s	60s	60s	60s 2	60s 1	60s	60s	60s
70s 1	70s	70s	70s 2	70s 4	70s	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
2.17%	0%	0%	67.39%	19.57%	0%	8.70%	2.17%

* includes 'kusa-iro' (grass colour) (1).

Oblong (LHS)

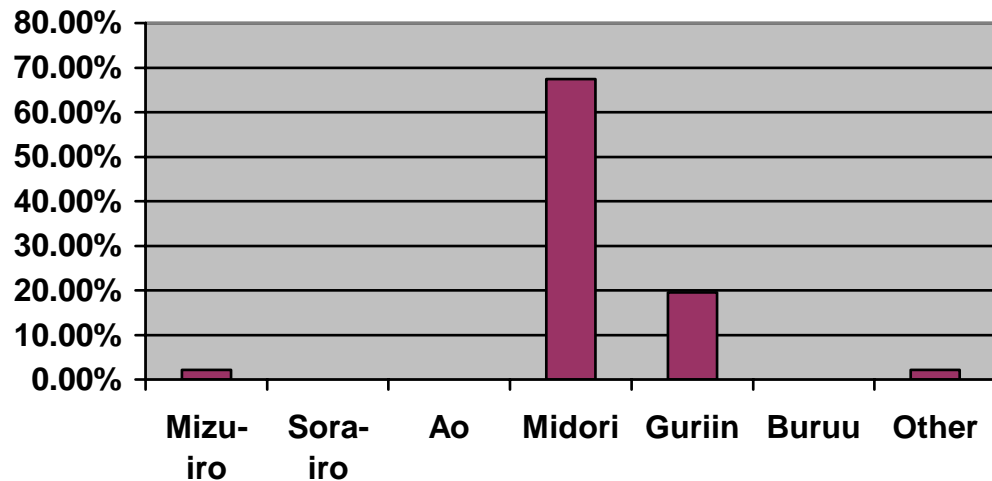


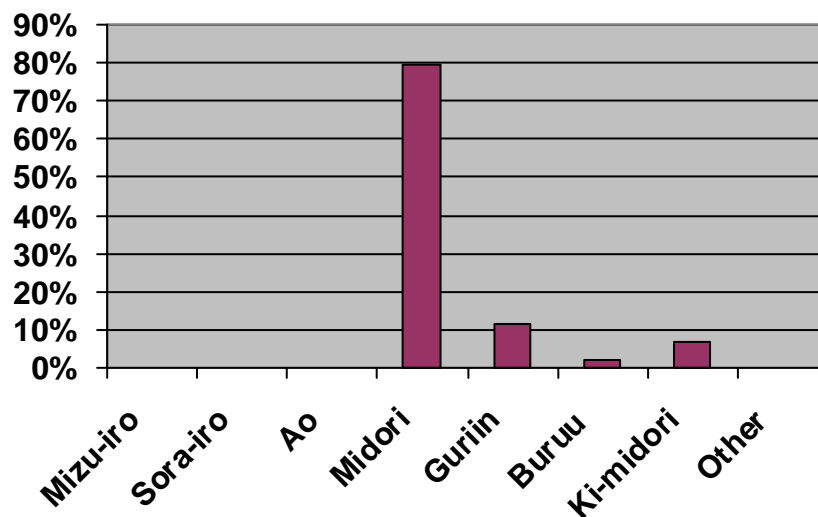
Table 6.8 Image No. 28

Description: pencil shape (bottom)

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M: 20	M: 3	M: 0	M: 1	M: 0
F: 0	F: 0	F: 0	F: 15	F: 2	F: 1	F: 2	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	20s 14	20s	20s	20s 1	20s
30s	30s	30s	30s 7	30s	30s	30s 2	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s	50s 4	50s	50s	50s	50s
60s	60s	60s	60s 2	60s 1	60s	60s	60s
70s	70s	70s	70s 2	70s 3	70s 1	70s	70s
Percentage	0%	Percentage	79.55%	Percentage	11.36%	Percentage	2.27%
						Percentage	6.82%
							Percentage
							0%

Pencil Shape (bottom)



Part 2 a (i): Conclusions

JNS distinguish ‘ao’ and ‘midori’ denotationally in much the same way as ENS distinguish blue and green

From the information provided above in relation to JNS descriptions of 4 colour samples which are clearly blue and 4 which are clearly green, the following may be observed.

The near total lack of the use of ‘ao’ where ‘midori’ or ‘guriin’ would be expected and the total lack of use of ‘midori’ where ‘ao’ or ‘buruu’ would be expected would seem to indicate that quite a clear distinction is made by JNS between the terms ‘ao’ and ‘midori’ when describing the colours English speakers would deem to be blue and green respectively. Only in the case of Image No. 15 is there evidence of ‘ao’ being used to describe an example of a green colour. However, as this is precisely the same green colour that is used in Images Nos 4, 19 and 28, the two ‘ao’ responses recorded might be considered errant and due to some cause other than an inability to distinguish blue and green.

The use of loanwords is less stable than native terms

The evidence provided, supports the findings of Nishikawa (1975) in relation to JNS clearly discriminating between de-contextualized examples of blue and green using the terms ‘ao’ and ‘midori’ respectively. It would, however, appear not to be the case that the use of the loanword terms ‘buruu’ and ‘guriin’ indicates the same level of stability evidenced by the native expressions. In the case of Images Nos 15 and 28, there are instances of colours which are clearly green being described as ‘buruu’ (an informant in the 60s and one in the 70s) and in the case of Images Nos 2, 4, 7 and 29 there are instances of colours which are clearly blue being described as ‘guriin’ (2 informants in the 20s, 3 in the 30s, 7 in the 40s, 1 in the 50s, 9 in the 60s and 11 in the 70s).

The ‘errant’ use of terms by which JNS call blue ‘guriin’, or green ‘ao’ or ‘buruu’, is a phenomenon prominently noticeable in the speech of older informants. Five of the six ‘errant’ instantiations of the term ‘guriin’ (across Images Nos 2, 4, 7 and 29), for example, were observed to have been made by informants in their 70s, with the only other example attributable to an informant in his 20s. Errant usages of the term ‘buruu’ (observed in Images 15 and 28) were exclusively attributable to informants in their 60s and 70s.

Generally speaking, the use of loanwords would appear to increase with age and could be considered a feature of the speech of the more senior informants, particularly those in their 60s or 70s.

Older JNS employ a greater range of descriptors than younger JNS

The data indicate that older informants draw upon a greater range of vocabulary than younger informants not only in terms of loanwords, as described above, but also in terms of the use of traditional ‘-iro’ (‘-coloured’) expressions. The use of such expressions, categorized as ‘other’ for all images, features more prominently in the colour descriptions offered by older informants (in their 50s or above) than it does in those offered by younger informants (in their 40s or below). Despite just under one-third of informants being in their 50s or older (14 from a cohort of 45), responses from this age group accounted for 60% of the instantiations of the ‘-iro’ expression. There were 3 instantiations attributable to informants in their in the 20s, 1 in the 40s, 5 in the 50s and 1 in the 60s. The expressions recorded and the number of instantiations for each are as follows: ‘ai-iro’ (indigo-colour) 4, ‘kusa-iro’ (grass-colour’) 3, ‘umi no iro’ (colour of the sea) 2 and ‘wakakusa-iro’ (young grass colour) 1.

The fact that most instantiations of both the traditional ‘-iro’ type expressions and the English loan word expressions ‘guriin’ and ‘buruu’ are attributable to older informants suggests that younger informants tend to restrict their descriptions of colour samples which are clearly blue or clearly green to the terms ‘ao’ and ‘midori’ (which are employed in much the same way as ENS would use ‘blue’ and ‘green’ respectively). This finding accords with a similar conclusion reached by Tyson (1994) in relation to the equivalent colour terms in the Korean language.

Native terms dominate over loanwords

The data relating to the eight images being considered in this section clearly indicate that native terms, in all cases, demonstrate a general dominance over loanwords. The closest ‘buruu’ gets to challenging ‘ao’, for example, is in Image No. 7 where it accounts for 22.92% of all responses (as opposed to 60.42% for ‘ao’) and the closest ‘guriin’ gets to rivalling ‘midori’ is in Image No.15, where it accounts for 16.66% of all responses (as opposed to 45.83% for ‘midori’). It is interesting to note, however, that although the use of native terms generally dominates over loanwords, in all the eight images being considered here, there are examples of relatively large numbers of informants in their 60s or 70s choosing the loanwords over the ‘equivalent’ native expressions.

The fact that in seven of the eight images observed, the usage of loanword expressions is ranked second in percentage terms amongst the specified descriptors (the exception being Image No. 15 where ‘guriin’ ranks lower than ‘ki-midori’ [yellow-green]) and the fact that the combined percentages for the response pairs ‘ao’ and ‘buruu’ (in the order the images are presented in the tables in this chapter: 91.10%, 76.59%, 83.34%, 65.30%) and likewise ‘midori’ and ‘guriin’ (again in the order the tables are presented above: 88.63%, 62.49%, 86.96%, 90.91%), constitutes a clear majority of overall responses suggesting that JNS consider these pairs to carry the same denotational meaning; that is to say ‘ao’ is for some informants what ‘buruu’ is for others and ‘midori’ is for some informants what others consider to be ‘guriin’.

Salience of ‘ki-midori’ (yellow-green)

It is evident from this data that the use of ‘ki-midori’ is commonly accepted as an appropriate descriptor for light green images (being ranked third in terms of percentage of overall descriptor usage) in all the images containing a clear green colour (Images Nos 4, 15, 19 and 28). This finding lends support to the suggestion by Stanlaw (1987) that ‘ki-midori’ should be considered a basic Japanese colour term. In fact, ‘ao’ was used as a descriptor for all de-contextualized images in the entire study except Image Nos 4 (bottom), 9, 19 (LHS) and 28 (bottom). All these are light green colours and considered to be ‘ki-midori’ by some JNS.

Gender not significant in determining colour term usage

Finally the data suggest that, as there is a reasonable gender balance across all colour expressions and for all images, gender is not a significant factor in determining the choice of colour nomenclature by JNS. Stanlaw (1987, p.346) reported similar findings concerning the level of gender based difference in relation to colour boundary mapping tasks. He concluded that, regarding colour, there was only an insignificant level of referential (and possibly cognitive) difference to be observed between the genders for his cohort of JNS informants.

Pt 2a (ii). For contemporary JNS does ‘ao’ ‘dominate’ over ‘midori’ as a descriptor for ‘in-between’ colours?

In order to address the question of whether the traditional ‘dominance’ of ‘ao’ over ‘midori’, as described in the literature, is still a feature of the language use of contemporary JNS, I recorded the nomenclature employed for three examples of ‘in-between’ or ‘indeterminate’ colours (colours neither distinctly blue nor distinctly

green), each in a variety of situations – in isolation, in contrast with other colours and, finally, in context (that is to say contextualized as part of a picture). The three case studies of ‘indeterminate’ colours are described in the following tables and figures.

Where quotations from informants were considered pertinent and of particular interest to this research they have been listed in Japanese, with English translations provided, according to a number which identifies the informant concerned.

Table 6.9 Case 1 'In-between blue/green colour' presented in isolation

Image No. 1

Description: Triangle

Total no. of instantiations: 45

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 5	M: 14	M: 3	M: 1	M: 0	M: 2
F: 0	F: 0	F: 6	F: 7	F: 1	F: 4	F: 0	F: 2
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens	Teens 1
20s	20s	20s 2	20s 13	20s	20s	20s	20s
30s	30s	30s 2	30s 2	30s 2	30s 1	30s	30s 2
40s	40s	40s 1	40s 1	40s	40s	40s	40s
50s	50s	50s 3	50s 0	50s	50s 2	50s	50s
60s	60s	60s 1	60s 1	60s	60s 1	60s	60s
70s	70s	70s 2	70s 1	70s 2	70s 1	70s	70s 1
Percentage	0%	Percentage	24.44%	Percentage	46.66%	Percentage	8.88%
Percentage	0%	Percentage	24.44%	Percentage	46.66%	Percentage	8.88%
Percentage	0%	Percentage	24.44%	Percentage	46.66%	Percentage	8.88%
Percentage	0%	Percentage	24.44%	Percentage	46.66%	Percentage	8.88%

* includes 'midori or ao' (1)

Triangle

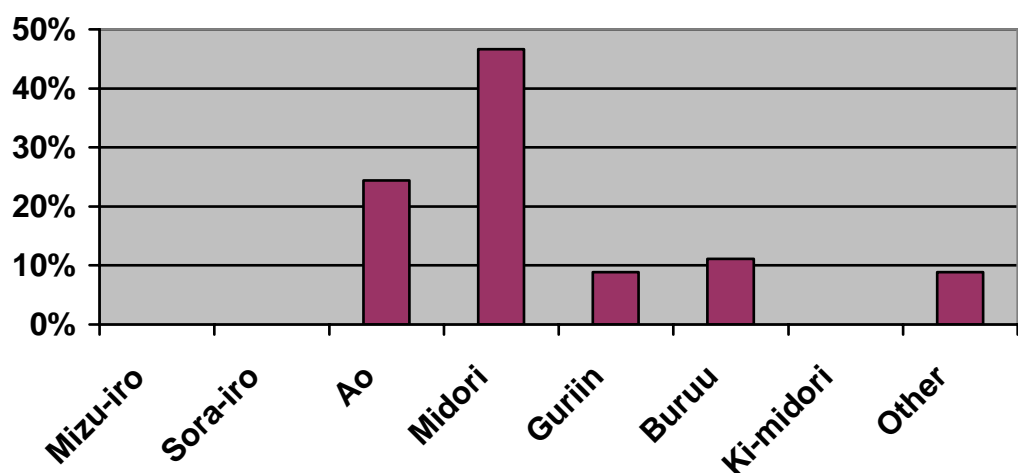


Table 6.10 Case 1 (continued): The same colour presented in contrast with a clear blue (Image No. 7, RHS)

Image No. 7

Description: ‘slipping triangles’ (RHS)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other						
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender						
M: 0	M: 0	M: 0	M: 17	M: 6	M: 0	M: 0	M: 3						
F: 0	F: 0	F: 1	F: 15	F: 3	F: 0	F: 0	F: 1						
Age	Age	Age	Age	Age	Age	Age	Age						
Teens	Teens	Teens 1	Teens 3	Teens	Teens	Teens	Teens						
20s	20s	20s	20s 14	20s 1	20s	20s	20s						
30s	30s	30s	30s 7	30s 1	30s	30s	30s 1						
40s	40s	40s	40s 2	40s 2	40s	40s	40s						
50s	50s	50s	50s 1	50s 1	50s	50s	50s 2						
60s	60s	60s	60s 2	60s	60s	60s	60s 1						
70s	70s	70s	70s 3	70s 4	70s	70s	70s						
Percentage	0%	Percentage	2.17%	Percentage	69.57%	Percentage	19.57%	Percentage	0%	Percentage	0%	Percentage	8.7%

* includes ‘guriin and buruu mix’ (1) and ‘ao-midori’ (2)

‘Slipping Triangles’ (RHS)

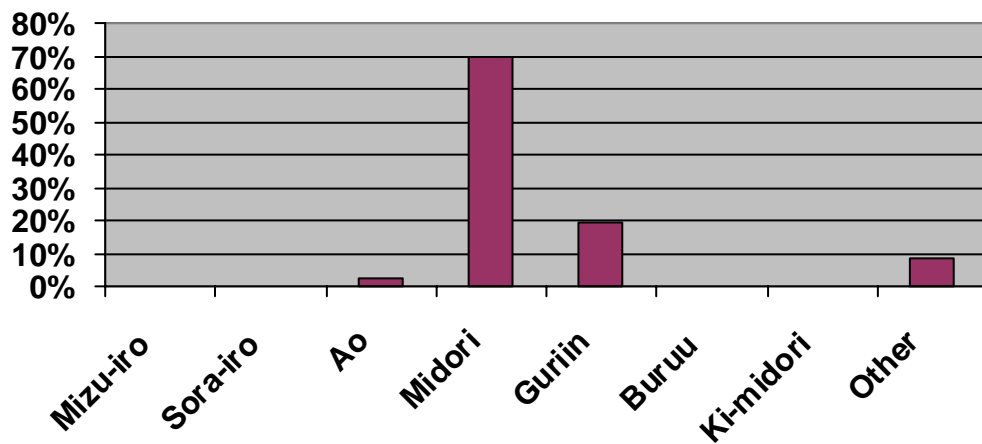


Table 6.11 Case 1 (continued): the same colour presented in contrast with a clear green (Image No. 15, triangle)

Image No. 15

Description: oblong with triangle in corner (triangle)

Total no. of instantiations: 50

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 4	M: 0	M: 11	M: 7	M: 3	M: 4	M: 0	M: 1
F: 0	F: 0	F: 7	F: 4	F: 0	F: 4	F: 0	F: 5
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 2	Teens 2	Teens	Teens	Teens	Teens
20s 1	20s	20s 7	20s 6	20s	20s 1	20s	20s 2
30s 2	30s	30s 4	30s	30s 1	30s 1	30s	30s 2
40s	40s	40s	40s 2	40s	40s 2	40s	40s
50s	50s	50s 2	50s	50s	50s 1	50s	50s 1
60s	60s	60s 1	60s	60s 1	60s	60s	60s 1
70s 1	70s	70s 2	70s 1	70s 1	70s 3	70s	70s
Percentage 8.00%	Percentage 0%	Percentage 36.00%	Percentage 22.00%	Percentage 6.00%	Percentage 16.00%	Percentage 0%	Percentage 12.00%

* includes 'ao-midori' (2), 'emerarudo guriin' (emerald green) (1) and 'kobaruuto buruu' (cobalt blue) (1).

Oblong with Triangle in Corner (Triangle)

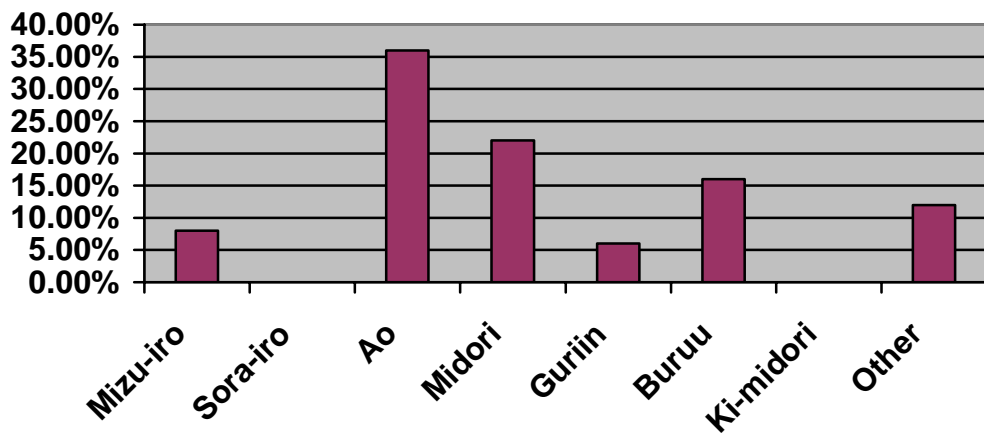


Table 6.12 Case 1 (continued): The same colour presented in context (Image No. 40 bottom left)

Image No. 40

Description: coral reef sea (bottom left)

Total no. of instantiations: 58

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 4	M: 17	M: 4	M: 5	M: 0	M: 3
F: 1	F: 0	F: 4	F: 7	F: 10	F: 2	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens 2	Teens	Teens	Teens
20s	20s	20s	20s 9	20s 6	20s 1	20s	20s
30s	30s	30s 2	30s 6	30s 1	30s	30s	30s 1
40s	40s	40s 1	40s 1	40s 1	40s 1	40s	40s
50s	50s	50s 1	50s 1	50s	50s	50s	50s 2
60s	60s	60s 2	60s 1	60s 1	60s 1	60s	60s
70s 1	70s	70s 2	70s 2	70s 3	70s 4	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
1.75%	0%	14.04%	42.11%	24.56%	12.28%	0%	5.26%

Coral Reef Sea (bottom left)

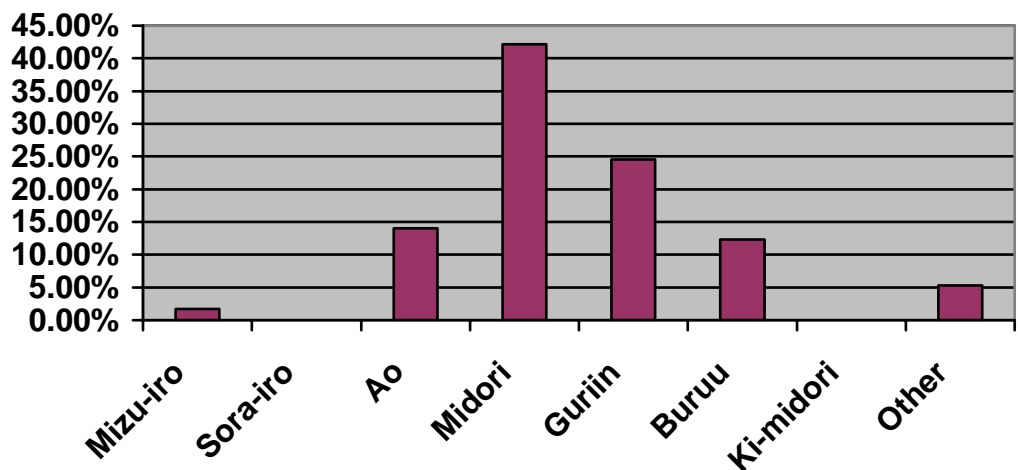


Table 6.13 Case 2 ‘In-between blue/green colour’ presented in isolation (Image No. 6)

Image No. 6

Description: oblong on an angle

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender
M: 0	M: 0	M: 3		M: 16		M: 3		M: 0		M: 0		M: 2
F: 0	F: 0	F: 5		F: 14		F: 1		F: 0		F: 0		F: 2
Age	Age	Age		Age		Age		Age		Age		Age
Teens	Teens	Teens 1		Teens 3		Teens		Teens		Teens		Teens
20s	20s	20s 4		20s 12		20s 1		20s		20s		20s
30s	30s	30s 1		30s 7		30s		30s		30s		30s 1
40s	40s	40s		40s 2		40s		40s		40s		40s
50s	50s	50s 1		50s 1		50s 1		50s		50s		50s 1
60s	60s	60s		60s 2		60s		60s		60s		60s 1
70s	70s	70s 1		70s 3		70s 2		70s		70s		70s 1
Percentage	0%	Percentage		Percentage		Percentage		Percentage		Percentage		Percentage
		17.39%		65.22%		8.70%		0%		0%		8.70%

* includes ‘guriin and buruu mix’ (1), ‘between ao and midori’ (1) and ‘ao-midori’

Oblong on an Angle

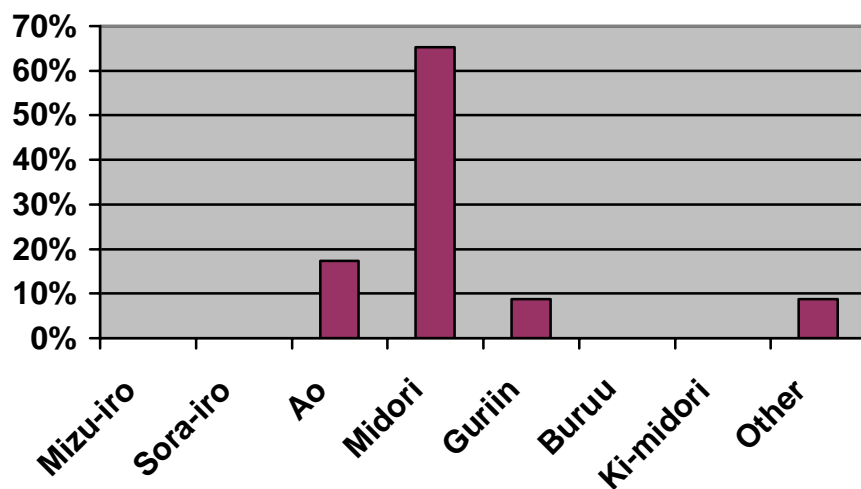


Table 6.14 Case 2 (continued): The same colour presented in contrast with a light blue (Image No. 5, dome)

Image No. 5

Description: ‘atomic dome’ shape (top)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 5	M: 15	M: 3	M: 1	M: 0	M: 1
F: 0	F: 0	F: 3	F: 13	F: 4	F: 0	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens	Teens
20s	20s	20s 4	20s 11	20s	20s	20s	20s
30s	30s	30s 2	30s 6	30s 2	30s	30s	30s
40s	40s	40s	40s 3	40s 1	40s	40s	40s
50s	50s	50s 1	50s 2	50s	50s	50s	50s 1
60s	60s	60s 1	60s 1	60s	60s	60s	60s 1
70s	70s	70s	70s 2	70s 4	70s 1	70s	70s
Percentage	0%	Percentage	17.39%	Percentage	60.87%	Percentage	15.19%
		Percentage	2.17%	Percentage	0%	Percentage	4.35%

* includes ‘ao and midori mix ‘ (1)

‘Atomic Dome’ Shape (top)

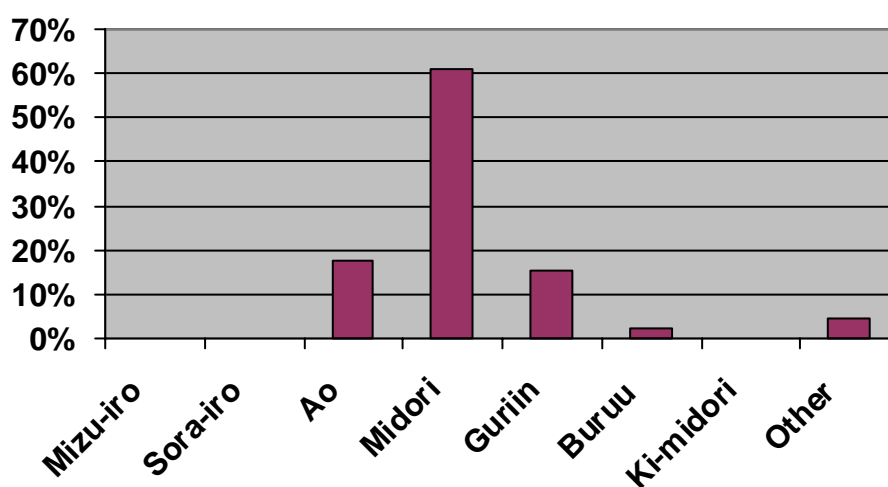


Table 6.15 Case 2 (continued): The same colour presented in contrast with a dark blue (Image No. 29, base)

Image No. 29

Description: triangle on its side (base)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 5	M: 13	M: 2	M: 2	M: 0	M: 4
F: 0	F: 0	F: 4	F: 13	F: 2	F: 0	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 3	Teens	Teens	Teens	Teens
20s	20s	20s 2	20s 11	20s	20s	20s	20s
30s	30s	30s 2	30s 6	30s	30s	30s	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s 2	50s	50s	50s	50s	50s
60s	60s	60s 1	60s 1	60s	60s 2	60s	60s
70s	70s	70s 1	70s 3	70s 3	70s	70s	70s
Percentage	0%	Percentage	19.57%	Percentage	56.52%	Percentage	8.70%
	Percentage	0%	Percentage	4.35%	Percentage	0%	Percentage
							10.87%

* includes 'ao-midori' (3) and 'ao and midori mix' (1)

Triangle on its Side (base)

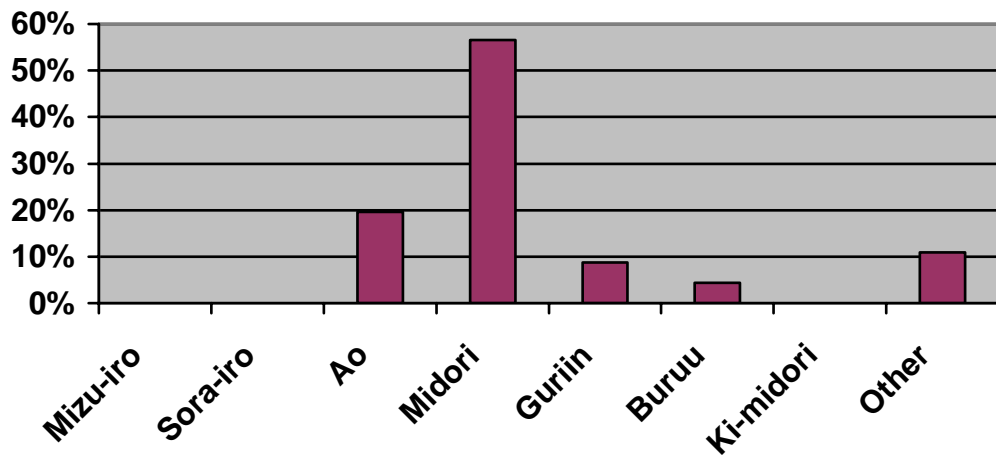


Table 6.16 Case 2 (continued): The same colour presented in contrast with a clear green (Image No. 22, bottom)

Image No. 22

Description: two-tone triangle (bottom)

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 3	M: 0	M: 8	M: 9	M: 2	M: 2	M: 0	M: 4
F: 0	F: 0	F: 4	F: 9	F: 2	F: 2	F: 0	F: 3
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s 2	20s	20s 3	20s 8	20s 1	20s	20s	20s 2
30s 1	30s	30s 5	30s 2	30s 1	30s	30s	30s 2
40s	40s	40s	40s 2	40s	40s 1	40s	40s
50s	50s	50s 1	50s	50s	50s	50s	50s 3
60s	60s	60s 1	60s	60s 1	60s 1	60s	60s
70s	70s	70s 2	70s 2	70s 1	70s 2	70s	70s
Percentage	6.25%	Percentage	0%	Percentage	25.00%	Percentage	37.50%
				Percentage	8.33%	Percentage	8.33%
						Percentage	0%
							Percentage
							14.58%

* includes 'ao-midori' (3) and 'midori and ao mix' (3).

Two-tone Triangle (bottom)

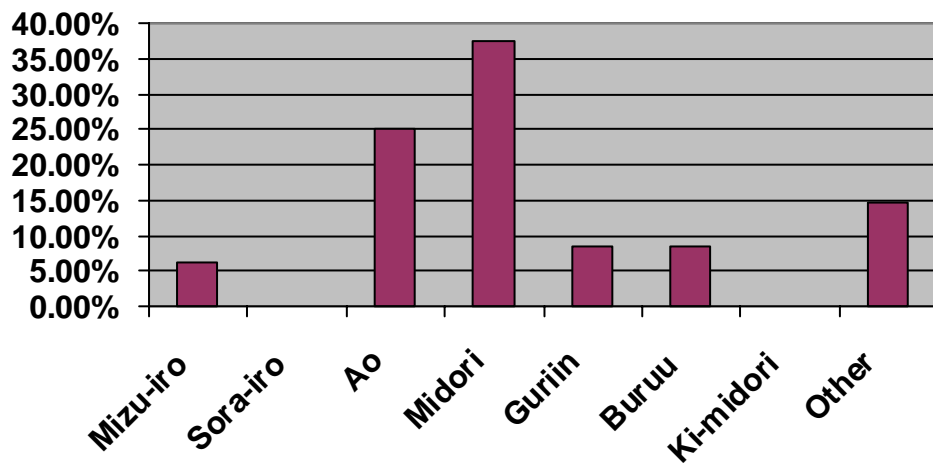


Table 6.17 Case 2 (continued): The same colour presented in context (Image No. 44)

Image No. 44

Description: bird's eye view of Okinawan sea

Total no. of instantiations: 57

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 8	M: 13	M: 5	M: 2	M: 0	M: 2
F: 0	F: 0	F: 7	F: 11	F: 5	F: 3	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 3	Teens	Teens	Teens	Teens
20s	20s	20s 2	20s 11	20s 3	20s	20s	20s 1
30s	30s	30s 5	30s 6	30s 2	30s 1	30s	30s 1
40s	40s	40s 1	40s 2	40s 1	40s 1	40s	40s
50s	50s	50s 2	50s	50s	50s 1	50s	50s 1
60s	60s	60s 2	60s	60s 1	60s 1	60s	60s
70s	70s	70s 2	70s 2	70s 3	70s 1	70s	70s
Percentage	0%	Percentage	26.32%	Percentage	42.11%	Percentage	17.54%
Percentage	0%	Percentage	8.77%	Percentage	0%	Percentage	5.26%

* includes 'ao-midori' (1), 'between ao and midori' (1) and 'emerarudo' (emerald) (1)

Bird's Eye View of Okinawan Sea

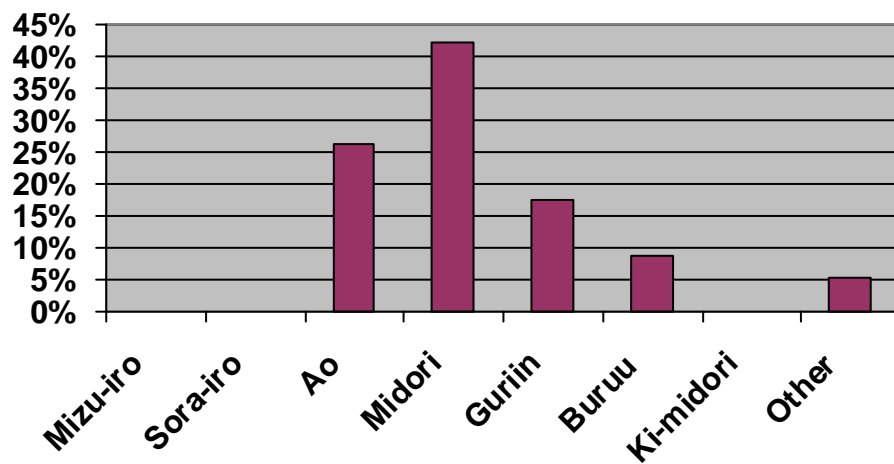


Table 6.18 Case 3 'In-between blue/green colour' presented in isolation (Image No. 14)

Image No. 14

Description: Buddha's nose

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 8	M: 0	M: 8	M: 1	M: 1	M: 3	M: 0	M: 3
F: 4	F: 0	F: 1	F: 3	F: 1	F: 2	F: 0	F: 9
Age	Age	Age	Age	Age	Age	Age	Age
Teens 2	Teens	Teens	Teens	Teens	Teens	Teens	Teens
20s 5	20s	20s 1	20s 3	20s	20s	20s	20s
30s 2	30s	30s 4	30s	30s	30s	30s	30s
40s	40s	40s	40s	40s	40s 1	40s	40s
50s	50s	50s 2	50s	50s 1	50s 1	50s	50s
60s 1	60s	60s 1	60s	60s	60s 1	60s	60s
70s 2	70s	70s 1	70s 1	70s 1	70s 2	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
27.27%	0%	20.45%	9.09%	4.55%	11.36%	0%	27.27%

* includes 'emerarudo guriin' (emerald green) (4), 'ao and midori mix' (2) and 'ao and guriin mix'

Buddha's Nose

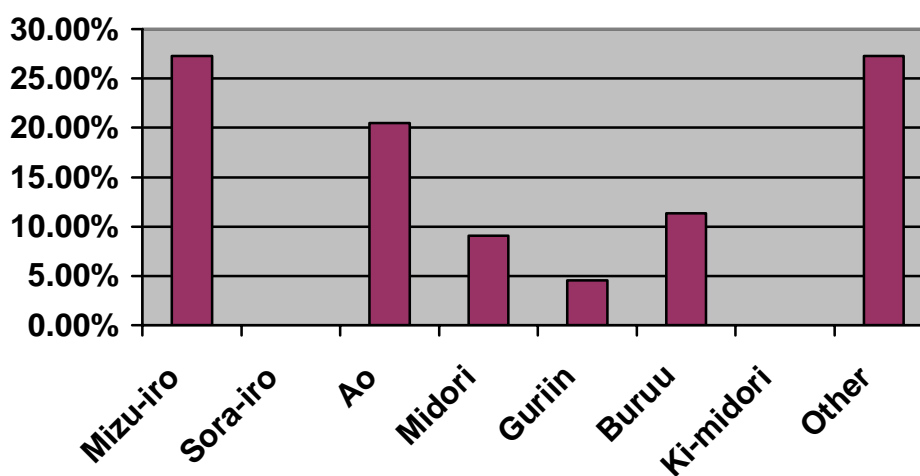


Table 6.19 Case 3 (continued): The same colour presented in contrast with a clear blue (Image No. 2, RHS)

Image No. 2

Description: split oblong (RHS)

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 5	M: 0	M: 3	M: 12	M: 3	M: 1	M: 0	M: 1
F: 7	F: 0	F: 0	F: 8	F: 0	F: 2	F: 0	F: 2
Age	Age	Age	Age	Age	Age	Age	Age
Teens 1	Teens	Teens	Teens 3	Teens	Teens	Teens	Teens
20s 4	20s	20s 1	20s 9	20s	20s	20s	20s 2
30s 2	30s	30s	30s 5	30s	30s 1	30s	30s
40s 1	40s	40s	40s 1	40s	40s 1	40s	40s
50s	50s	50s 2	50s	50s	50s 1	50s	50s 1
60s	60s	60s	60s 1	60s 1	60s	60s	60s
70s 4	70s	70s	70s 1	70s 2	70s	70s	70s
Percentage	27.27%	Percentage	6.82%	Percentage	45.45%	Percentage	6.82%
		Percentage	0%	Percentage	6.82%	Percentage	6.82%
				Percentage	0%	Percentage	6.82%

* includes 'midori or ao' (1) and 'midori and buruu mix' (1)

Split Oblong (RHS)

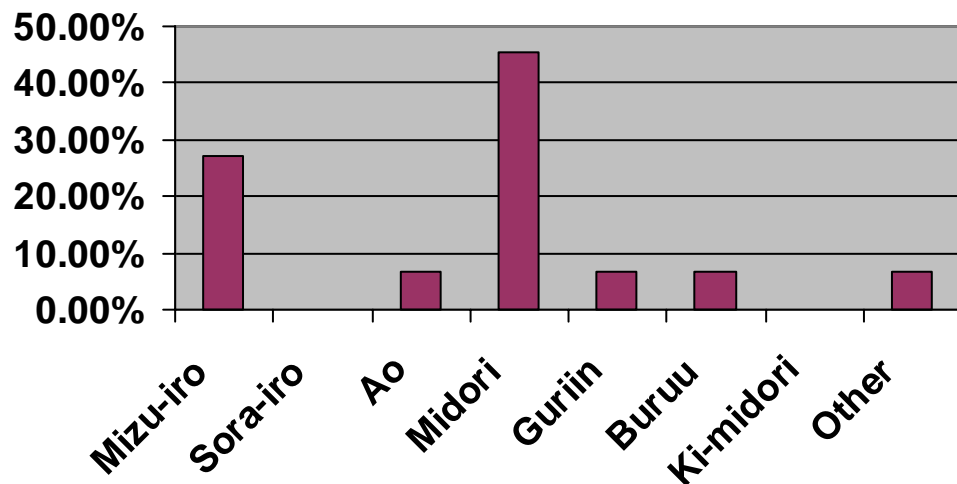


Table 6.20 Case 3 (continued) The same colour presented in contrast with a clear green (Image No. 19, RHS)

Image No. 19

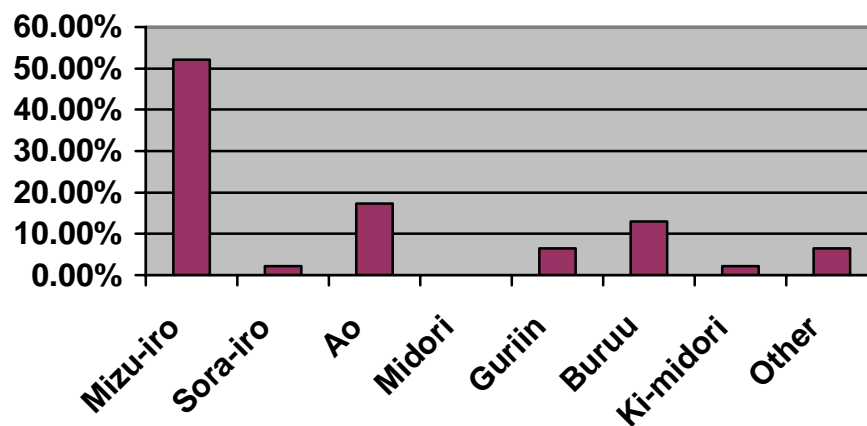
Description: oblong (RHS)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 14	M: 0	M: 2	M: 0	M: 2	M: 5	M: 1	M: 2
F: 10	F: 1	F: 6	F: 0	F: 1	F: 1	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens 3	Teens	Teens	Teens	Teens	Teens	Teens 1	Teens
20s 11	20s	20s 3	20s	20s	20s	20s	20s 1
30s 7	30s	30s 1	30s	30s	30s 2	30s	30s
40s 1	40s	40s	40s	40s 1	40s 1	40s	40s
50s	50s	50s 1	50s	50s 1	50s 2	50s	50s 1
60s	60s	60s 1	60s	60s	60s	60s	60s 1
70s 2	70s 1	70s 2	70s	70s 1	70s 1	70s	70s
Percentage	52.17%	Percentage	2.17%	Percentage	17.39%	Percentage	0%
				Percentage	6.52%	Percentage	13.04%
						Percentage	2.17%
							Percentage
							6.52%

* includes 'kusa-iro' (grass colour) (1) and 'emerarudo guriin' (emerald green) (1).

Oblong (RHS)



Case 3 (continued): The same colour presented in context (Image No. 23, the nose)

Pertinent quotations obtained from informants (by informant number):

3 2 緑、苔色

3 青っぽい

5 緑青 (りょくしょう) の色

2 3 青銅色

2 1 青、緑

32. It's 'midori', 'koke-iro' (moss-coloured).

3. It's 'aoppoi' ('ao'-ish)

5. It's 'ryokusho-iro' (=midori-ao coloured).

23. It's 'seido-iro' (=bronze coloured).

21. It's 'ao', it's 'midori'.

Table 6.21 Image No. 23

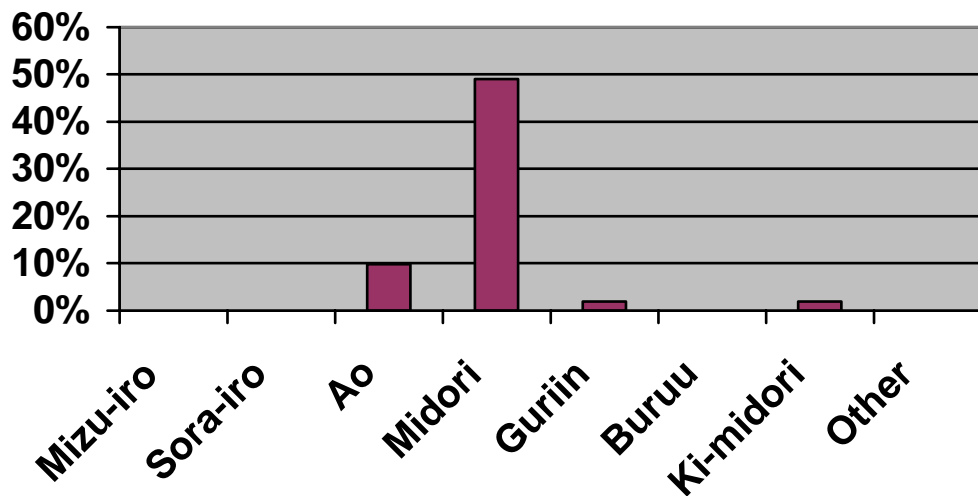
Description: Buddha's face

Total no. of instantiations: 51

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 3	M: 15	M: 0	M: 0	M: 1	M: 11
F: 0	F: 0	F: 2	F: 10	F: 1	F: 0	F: 0	F: 8
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 13	20s	20s	20s 1	20s 2
30s	30s	30s 1	30s 4	30s	30s	30s	30s 6
40s	40s	40s	40s 1	40s	40s	40s	40s 3
50s	50s	50s 1	50s 1	50s 1	50s	50s	50s 2
60s	60s	60s 1	60s	60s	60s	60s	60s 2
70s	70s	70s 1	70s 2	70s	70s	70s	70s 4
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
0%	0%	9.80%	49.02%	1.96%	0%	1.96%	37.25%

* includes 'rokusho no iro' 緑青色 (green rust) (8), 'seido-iro' 青銅色 (bronze) (7), 'guriin and sora-iro mix' (1), 'midori and ao mix' (1) and 'koke-iro' (moss colour) (1).

Buddha's Face



Part 2 a (ii): Conclusions

'Ao' does not dominate over 'midori' as a descriptor for 'in-between' colours.

The results from each of the three cases investigated do not indicate that the traditional 'dominance' of the term 'ao' over 'midori', as noted in the literature, persists as a feature of the language use of contemporary JNS.

In Case 1 the proportion of informants using the term 'ao' as a descriptor is greater than those choosing 'midori' only for Image No. 15, in the situation where the turquoise colour is being compared to a good green. In Case 2 'ao' is universally less popular than 'midori' as a descriptor and in Case 3 'ao' is the more popular a choice for Images Nos 14 and 19, but 'midori' is the more popular choice for Images Nos 23 and 2. These findings would suggest that contemporary JNS have broken with the traditional position of using the term 'ao' very broadly, that is to say, to describe not only blue colours but also a broad range of cool or dark colours when these colours are presented as de-contextualized entities. For virtually all images (the exception being Image No. 2 (RHS) for which all three respondents were male, there being no female representation) a wide range of age groups and both genders are represented in the responses received, suggesting strongly that neither age nor gender is a significant factor in determining JNS choice of these terms as descriptors.

The 'in-between' status of the colours in question, which can be interpreted as an acknowledgment that for JNS 'midori' and 'ao', are cognized as representing separate colour categories, is brought to the fore by the plethora of different responses recorded under the heading 'other'. A large proportion of responses indicated that the colour being described was considered neither to fall clearly into the 'ao' category nor clearly into the 'midori' category. With the exception of Image No. 40, for which all three respondents were male, responses recorded in the 'other' category for all images in Cases 1, 2 and 3 were representative of both genders and all age brackets. The use of the following colour terms or colour descriptions suggests that contemporary JNS tend not to use the term 'ao' in de-contextualized environments with a particularly wide frame of reference, that is to say, to include areas of the spectrum which are 'in-between' clear blue and clear green. Such 'in-between' colours are generally described accordingly. Examples of such descriptions are as follow:

Case 1: ‘rokushou’ 緑青 (Image No. 40), either ‘midori’ or ‘ao’, ‘ao’ tinged with ‘midori’ 緑味の青 (Image No. 1), ‘ao midori’, ‘ao’ tinged with ‘midori’ 緑味の青, ‘guriin’ and ‘buruu’ mixed (Image No. 7), a mixture of ‘ao’ and ‘midori’ (Image No. 15).

Case 2: between ‘ao’ and ‘midori’ 青と緑の間, ‘ao-midori’ (Image No. 44) between ‘ao’ and ‘midori’ 青と緑の間, ‘ao-midori’, mixture of ‘buruu’ and ‘guriin’ (Image No. 6), a mixture of ‘ao’ and ‘midori’ (Image No. 5, top), ‘ao-midori’, a mixture of ‘ao’ and ‘midori’ (Image No. 22, bottom), ‘midori’ and ‘ao’ mixed, ‘ao-midori’ (Image No. 29, base).

Case 3: ‘rokushou’ 緑青, ‘guriin’ and ‘sora-iro’ mixed, ‘midori’ and ‘ao’ mixed, ‘seidoushoku’ 青銅色 (Image No. 23)、 ‘midori’ and ‘ao’ mixed, ‘ao’ and ‘guriin’ mixed (Image No. 14), ‘midori’ and ‘buruu’ mixed, ‘ao’ or ‘midori’ (Image No. 19, RHS).

An element of likely contextual dependence can be noted in the responses recorded in the ‘other’ category for Image No. 23 (Case 3). Here we see seven instantiations of the expression 青銅色, (‘seidoushoku’ [or ‘seidou-iro’]) a term used exclusively to describe the colour of the Buddha’s face in context. Literally this expression means ‘ao’ copper colour, or ‘bronze’. The question of contextual dependency will be focussed on in Part 2 b (ii) of this chapter. For this image the usage of colour terms classified as ‘other’ was observed to involve all age brackets.

Saliency of ‘mizu-iro’

It is interesting to note that the term ‘mizu-iro’, also, was not characterized by a preponderance of selection by informants belonging to any particular age bracket or either gender. In Case 3 this term was selected by 27.27%, 27.27% and 52.17% of respondents when describing Image No. 14 (in isolation), Image No. 2 (in contrast with a clear blue) and Image No. 19 (in contrast with a clear green) respectively. These findings in relation to the question of saliency and common usage of ‘mizu-iro’ as a colour term accord with the suggestion made by Stanlaw (1987) that this term should be considered a potential candidate for basic colour terms status in Japanese.

Loanword usage is a feature of the speech of older JNS

The use of foreign loanwords in all three cases involving descriptions of ‘in-between’ colours generally indicates a disproportionately high representation of responses from informants in their 50s or above. For example, older informants (50+) offered a total of 13 usages of ‘buruu’ for the four images being considered in Case 1, as opposed to a total of seven cases of its usage by informants in their teens, 20s, 30s and 40s. The lone exception to this trend is witnessed in relation to Image No. 14 (Case 3). For this image all 12 instantiations of the word ‘buruu’ are attributable to informants in their teens, 20s, 30s and 40s, with no examples being recorded by informants over the age of 49. For all other images being considered in Cases 1, 2 and 3, the demonstrated level of loanword usage is disproportionately high for informants in their 50s, 60s and 70s. As was the case for the description of colours, which can be thought of as being clear examples of blue or green, the use of loanwords to describe ‘in-between’ colours would appear, generally speaking, to increase with age and could be considered a feature of the speech of the more senior informants, particularly those in their 60s and 70s.

The ‘errant’ use of loanword terms by which JNS call ‘in-between’ colours (which would not be described as being ‘blue’ by ENS) ‘buruu’, is a phenomenon prominently noticeable in the speech of older informants. Thirteen of the twenty ‘errant’ instantiations of the term ‘buruu’ (across Images Nos 1, 15 and 40), for example, were observed to have been made by informants in their 50s or above. Errant usages of the term ‘buruu’ (observed across Images Nos 5, 22, 29 and 44) were prominent in the responses of informants in their 50s or above, with nine of the twelve cases being attributable to informants in this age bracket. As Case 3 presents a colour which ENS could conceivably describe using either of the terms ‘blue’ or ‘green’, neither the response ‘buruu’ nor the response ‘guriin’ was considered to be errant.

Gender not a factor in colour descriptor choice

As was the case for the examples of clear blues and clear greens, the data presented in the three cases of ‘in-between’ colours being focussed on in this section indicates there is a reasonable gender balance across all colour expressions and for all images, again suggesting that gender is not a significant factor in determining the choice of colour nomenclature by JNS.

Part 2b: Empirical colour term usage exercise involving the description of colour samples presented in a contextualized environment

Pt 2b (i). How is ‘ao’ used empirically (i.e. as a descriptor for contextualized images)?

In this part of the research oral interviews were conducted and all colour term descriptors used by the JNS interviewees were recorded. Then, for each image, the number of instantiations of each colour term descriptor was logged (according to gender and age bracket variables) and presented both as an absolute number and as a percentage of the overall number of descriptors logged.

As in part 2 a(ii), where quotations from informants were considered pertinent and of particular interest to this research they have been listed in Japanese, with English translations provided, according to a number which identifies the informant concerned.

Table 6.22 Image No. 8

Description: French flag

Total no. of instantiations: 72

Mizu-iro	Sora-iro	AO(including 'kon' and 'murasaki')		Midori	Guriin	Buruu	Ki-midori	Other	
Gender	Gender	Gender		Gender	Gender	Gender	Gender	Gender	
M: 0	M: 0	M: 22		M: 0	M: 0	M: 3	M: 0	M: 0	
F: 0	F: 0	F: 18		F: 0	F: 0	F: 0	F: 0	F: 0	
Age	Age	Age		Age	Age	Age	Age	Age	
Teens	Teens	Teens 4		Teens	Teens	Teens	Teens	Teens	
20s	20s	20s	14	20s	20s	20s	20s	20s	
30s	30s	30s	9	30s	30s	30s	1 30s	30s	
40s	40s	40s	3	40s	40s	40s	40s	40s	
50s	50s	50s	4	50s	50s	50s	50s	50s	
60s	60s	60s		60s	60s	60s	1 60s	60s	
70s	70s	70s	6	70s	70s	70s	1 70s	70s	
Percentage	2.27%	Percentage	90.90%	Percentage	0%	Percentage	6.82%	Percentage	0%

French Flag

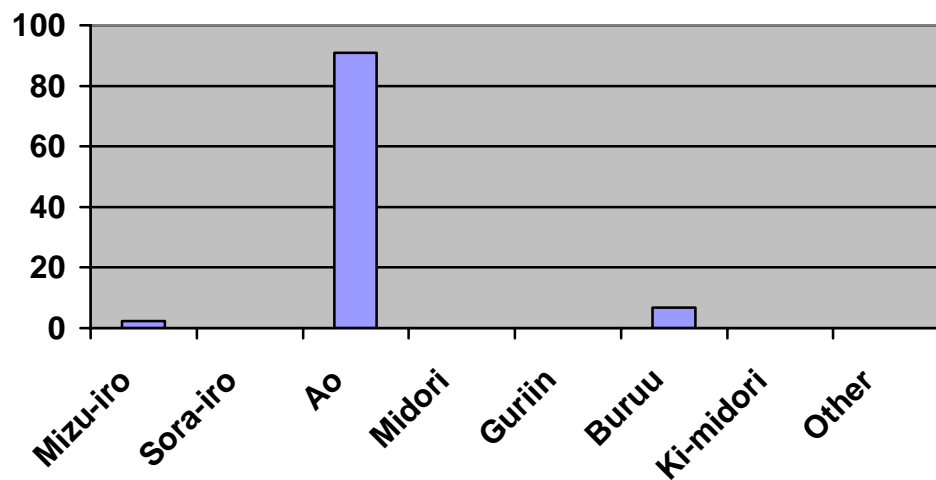


Image No. 8 (French flag)

None of the informants described the blue portion of the French flag as either 'midori' or 'guriin', with the vast majority of responses (90.90%) indicating that is 'ao' is appropriate as a descriptor. In addition 6.82% suggested 'buruu' (two thirds of whom were in their 60s or 70s) while 2.27% suggested 'mizu-iro'.

Table 6.23 Image No. 64

Description: Italian flag

Total no. of instantiations: 16

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M: 7	M: 1	M: 0	M: 0	M: 0
F: 0	F: 0	F: 0	F: 7	F: 1	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 1	Teens	Teens	Teens	Teens
20s	20s	20s	20s 8	20s	20s	20s	20s
30s	30s	30s	30s 2	30s	30s	30s	30s
40s	40s	40s	40s 2	40s	40s	40s	40s
50s	50s	50s	50s	50s	50s	50s	50s
60s	60s	60s	60s 1	60s	60s	60s	60s
70s	70s	70s	70s	70s 2	70s	70s	70s
Percentage	0%	Percentage	0%	Percentage	87.50%	Percentage	12.50%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%

Italian Flag

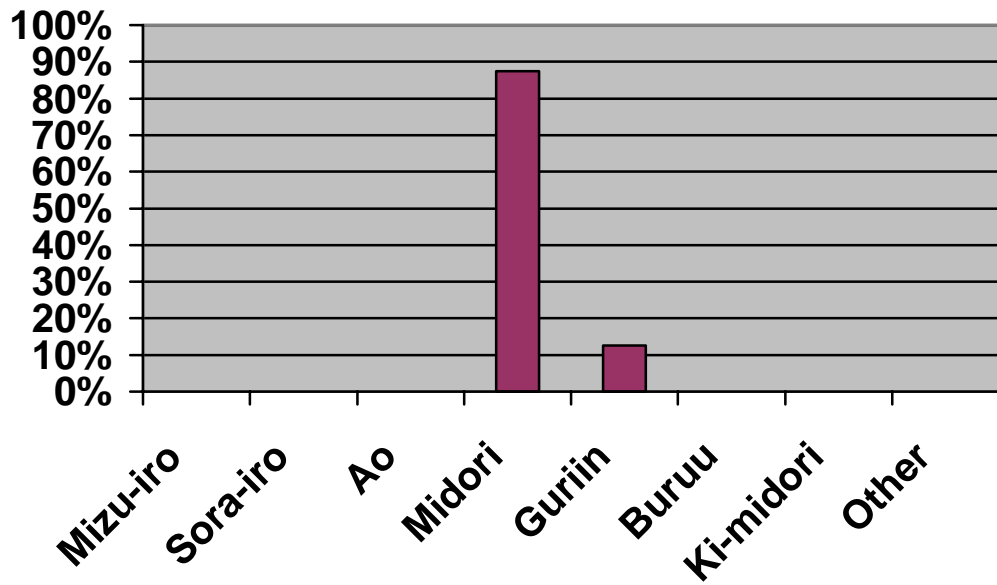


Image No. 64 (Italian flag)

None of the informants described the green portion of the Italian flag as either ‘ao’ or ‘buruu’, with a large majority of responses (87.50%) indicating that ‘midori’ is appropriate as a descriptor. 12.50% suggested ‘guriin’ (two informants, both of whom were in their 70s).

From Images Nos 8 and 64 the conclusion can be drawn that there is no JNS ‘confusion’ between blue and green when describing these flags. Blue is generally regarded as ‘ao’ or ‘buruu’ and green universally as ‘midori’ or ‘guriin’. The tendency for loanwords to be associated with the speech of older informants is also evident.

Image No. 10 (blue eye: human).

Pertinent quotations obtained from informants (by informant number):

2 5 青い目

3 5 ブルー、青色の目

5 ライト・ブルー

25. An ‘aoi’ eye.

35. An eye that’s ‘buruu’, ‘ao’ in colour.

5. ‘raito buruu’ (light blue)

Table 6.24 Image No. 10

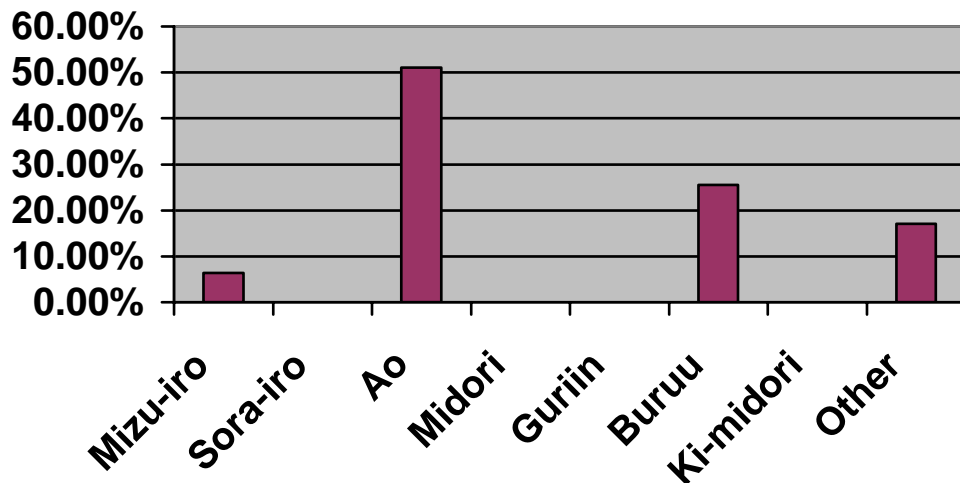
Description: blue eye (human)

Total no. of instantiations: 43

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 1	M: 0	M: 14	M: 0	M: 0	M: 7	M: 0	M: 4
F: 2	F: 0	F: 10	F: 0	F: 0	F: 5	F: 0	F: 4
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 3	Teens	Teens	Teens 1	Teens	Teens
20s	20s	20s 12	20s	20s	20s 1	20s	20s
30s	30s	30s 7	30s	30s	30s 2	30s	30s
40s	40s	40s	40s	40s	40s 2	40s	40s 1
50s	50s	50s 2	50s	50s	50s 1	50s	50s 1
60s	60s	60s	60s	60s	60s 2	60s	60s 1
70s	70s	70s	70s	70s	70s 3	70s	70s 3
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
6.38%	0%	51.06%	0%	0%	25.53%	0%	17.02%

* includes 'guree' (grey) (3) and 'indescribable' (1).

Blue Eye (human)



Only 51.06% of informants' responses described this human eye as 'ao', with 22 of the 24 'ao' responses being received from informants in their teens, 20s or 30s. A further 25.53% described it as being 'buruu', with six of the 12 'buruu' responses being received from informants in their 50s or above. The quotation provided by Informant 25 suggests the possibility of collocational factors being instrumental in descriptor choice.

A large proportion of the responses received (17.02%) were classified as 'other'. These included four 'guree' responses (two from informants in their teens, one from an informant in his 40s [who suggested 'aogakatta guree' (grey tinged with 'ao') and 'beiju guree' (beige grey)] and one from an informant in her 60s). One informant in his 70s suggested 'nezumi-iro' (grey) and another in his 70s suggested this image was 'indescribable'.

Image No. 11 (blue eyes: cat)

Pertinent quotations obtained from informants (by informant number):

42 これはサファイアー色ですね。エメラルドグリーンなるのかなあ。
キャツアイって、、、ああそうか、、、グレーではないですね、このねこは色
は目の色はブルーです。

42. This is 'safaiiaa-iro' (sapphire-coloured), or perhaps I should say 'emerarudo guriin' (emerald green). Cats' eyes are...let me see...they're not 'guree' (grey) are they. This cat's eyes are 'buruu'.

Table 6.25 Image No. 11

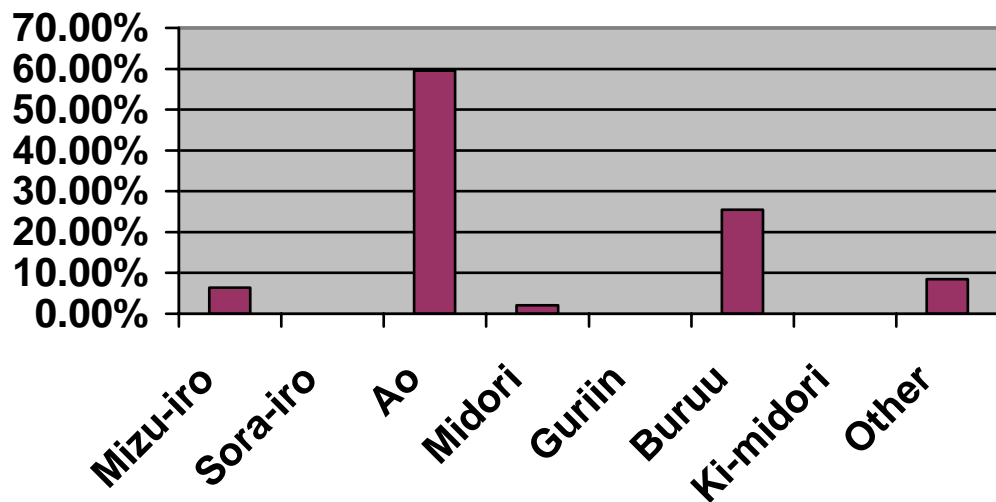
Description: blue eyes (cat)

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other			
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender			
M: 2	M: 0	M: 16		M: 1		M: 0		M: 6		M: 0		M: 2			
F: 1	F: 0	F: 12		F: 0		F: 0		F: 5		F: 0		F: 2			
Age	Age	Age		Age		Age		Age		Age		Age			
Teens	Teens	Teens 4		Teens		Teens		Teens		Teens		Teens			
20s	20s	20s	12	20s	1	20s	20s	20s	20s	20s	20s	20s			
30s	30s	30s	9	30s		30s	30s	30s	30s	30s	30s	30s			
40s	40s	40s		40s		40s	40s	40s	3	40s		40s			
50s	50s	50s	2	50s		50s	50s	50s	2	50s		50s			
60s	60s	60s		60s		60s	60s	60s	3	60s		60s			
70s	1	70s	1	70s		70s	70s	70s	3	70s		70s			
Percentage	6.38%	Percentage	0%	Percentage	59.57%	Percentage	2.13%	Percentage	0%	Percentage	25.53%	Percentage	0%	Percentage	8.52%

* includes 'saffaia' (sapphire), 'guree' (grey) (1 each) and 'indescribable' (2)

Blue Eyes (cat)



A total of 59.57% of informants' responses described this cat's eyes as 'ao' (25 of the 28 'ao' responses received were from informants in their teens, 20s or 30s). A

further 25.53% described them as being ‘buruu’ (all such responses being received from informants in their 40s or above). One informant, a male in his 20s, offered the name ‘midori’ - adding that he had never seen such a cat, while 8.52% of responses (4) were classified as ‘other’. These were all received from informants in their 50s or above and included ‘guree’ (grey), a potpourri answer ‘saffaia, emerarudo guriin, guree, buruu’ (sapphire, emerald green, grey, blue) and two ‘indescribable’ responses.

From Images Nos 10 and 11 it is evident that ‘ao’ has a large following as a descriptor amongst JNS in their 40s and below and that the loanword ‘buruu’ was suggested primarily by older informants. It is also evident that a considerable level of indeterminacy is displayed by informants in their 50s and above and that ‘errant’ descriptions (e.g. describing these blue eyes as being ‘midori’) are not exclusively attributable to senior JNS. The popular use of ‘ao’ and ‘buruu’ as descriptors for both these images accords with the findings outlined in Part 1 of this research (the word association exercise) which suggests that both these colour terms are thought of as being suitable descriptors for eyes.

It would appear from the results obtained from these images that ‘ao’ is a term which ‘sits well’ with younger JNS and that the loanword ‘buruu’, by contrast, is selected more by older informants. Indeterminacy (the inability to find a descriptor deemed suitable) and the use of loanwords and the traditional ‘-iro’ type expression were seen to be features of the language use of older informants.

Image No. 12 (green eye: human)

Pertinent quotations obtained from informants (by informant number):

1 7 日本のお人の目と違ひます。薄い水色みたいな感じ。青い目。

6 エメラルド色。

2 6 説明しきれないね。

5 これは正しくあのう、そうですね、いわゆる欧米系の典型的な人の目ですね。何色でしょうね。何色というんでしょう。黒目じゃないですね、少なくとも黒目じゃない。何とも名状しがたいですね。名状しがたい人ですね。

1 3 緑色

17. This is different to the eyes of Japanese people. It's sort of pale 'mizu-iro' (light blue). It's an 'aoi me' (an 'aoi' eye).

6. 'Emerarudo-iro' (emerald coloured)

26. This can't be described.

5. Let me see, this is, to be accurate... okay, it's a typical Caucasian eye, isn't it. How can I describe the colour? What colour is this? It's not a Japanese-type eye ('kuro me'). It's certainly not a 'kuro-me'. It's very hard to put a name to this, very hard.

13. It's 'midori-iro'.

Table 6.26 Image No. 12

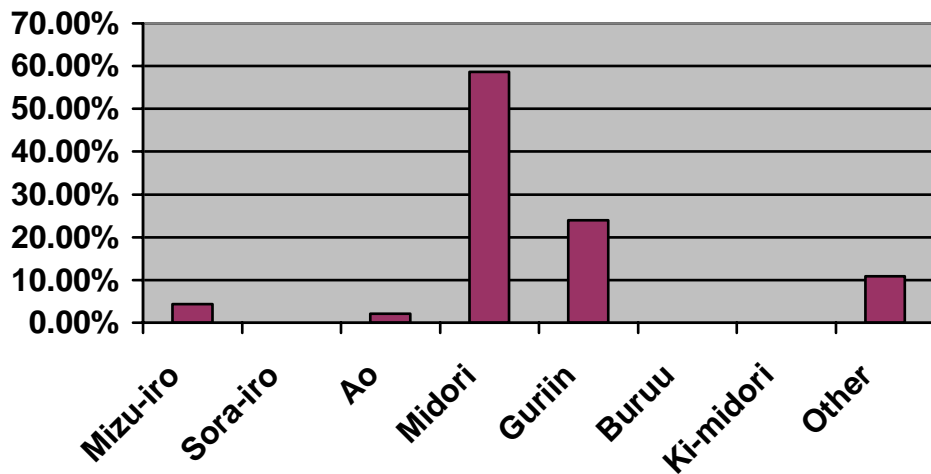
Description: green eye (human)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 1	M: 0	M: 0	M: 15	M: 3	M: 0	M: 0	M: 5
F: 1	F: 0	F: 1	F: 12	F: 8	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens	Teens
20s 1	20s	20s 1	20s 14	20s	20s	20s	20s
30s	30s	30s	30s 5	30s 3	30s	30s	30s
40s	40s	40s	40s 2	40s 2	40s	40s	40s
50s	50s	50s	50s 1	50s 2	50s	50s	50s
60s	60s	60s	60s 1	60s 1	60s	60s	60s
70s 1	70s	70s	70s 1	70s 3	70s	70s	70s
Percentage	4.35%	Percentage	0%	Percentage	2.17%	Percentage	58.70%
				Percentage	23.91%	Percentage	0%
						Percentage	0%
							Percentage
							10.87%

* includes 'indescribable' (2) and 'emerarudo-iro' (emerald colour) (2).

Green Eye (human)



A total of 58.70% of informants' responses described this human eye as 'midori' (24 of the 27 'midori' responses received were from informants under the age of 50). A further 23.91% (none in the teens or 20s) described it as being 'guriin'. 'Mizu-iro' was the descriptor used by two informants (1:teens, 1:70s) while one informant (20s) used 'ao' to describe this green eye. 10% of the responses received were classified as 'other' and included two 'emeraru-iro' (emerald colour) responses (from informants in their 30s and 50s) and two responses suggesting this image was 'indescribable' (1:60s, 1:70s).

Image No. 13 (green eyes: cat)

Pertinent quotations obtained from informants (by informant number):

17 青い、目の、人のみたいですね。

30 黄緑

20 青

39 グリーン

8 緑色っぽい

17. It looks like a human's 'aoi-me' ('aoi' eye).

30. It's 'ki-midori' (yellow-green).

20. It's 'ao'.

39. It's 'guriin'.

8. It's 'midori' -ish.

Table 6.27 Image No. 13

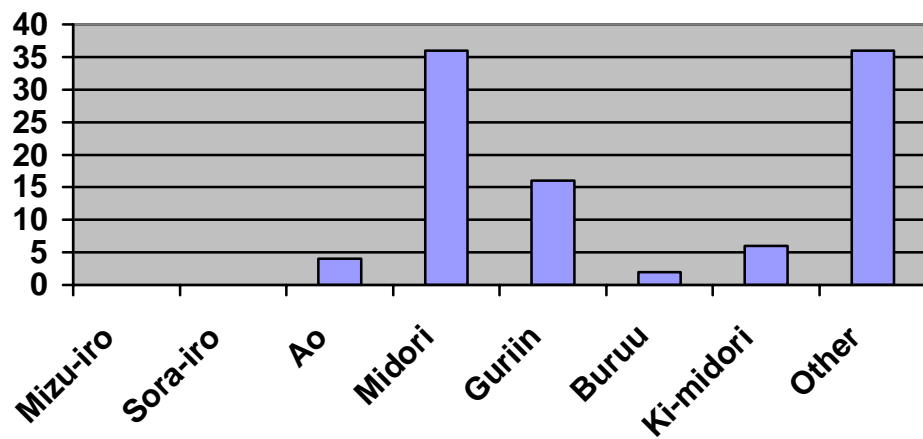
Description: green eyes (cat)

Total no. of instantiations: 50

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 1	M: 11	M: 3	M: 1	M: 0	M: 11
F: 0	F: 0	F: 1	F: 7	F: 5	F: 0	F: 3	F: 7
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens 1
20s	20s	20s	20s 7	20s	20s	20s 1	20s 7
30s	30s	30s 1	30s 3	30s 4	30s	30s	30s 2
40s	40s	40s	40s 1	40s	40s	40s 1	40s 2
50s	50s	50s	50s 1	50s 1	50s	50s 1	50s 2
60s	60s	60s	60s 1	60s	60s	60s	60s 2
70s	70s	70s 1	70s 1	70s 3	70s 1	70s	70s 2
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
0%	0%	4.00%	36.00%	16.00%	2.00%	6.00%	36.00%

* the huge variety of responses included 'hada-iro' (skin coloured) (2) and 'indescribable' (2).

Green Eyes (Cat)



'Midori' was the most popular descriptor, representing 36% of all responses received. Fifteen of the 18 'midori' responses were attributable to informants under the age of 50. 'Guriin' accounted for 16% of responses, with four of the eight instantiations being from informants in their 50s or above. One informant in her 30s and another in his 70s suggested this cat's eyes were 'ao'.

A large 36% of responses were categorized as 'other'. These cut across gender (11 male and 10 female) and age differentials and include 'goorudo' (gold) (1: 70s), 'hada-iro' (flesh colour) (1: teens, 1:30s), 'tobi-iro' (pilferer [bird] colour - brown) (1: 50s), 'guree' (grey) (1:teens, 1:60s) and 'ki-midori (ppoi)' (yellow-green[ish]) (1:teens, 1:40s and 1:50s).

From Images Nos 12 and 13 it is evident that 'midori' has a large following as a descriptor amongst JNS in their 40s and below and that the loanword 'guriin' was suggested primarily by older informants. It is also evident that a considerable level of indeterminacy (suggesting the image is 'indescribable') is displayed by informants in their 50s and above. In the case of Image No. 12 it is the older informants who display a high level of indeterminacy (1:60s, 1:70s), while for Image No. 13 both younger and older informants display this (1:20s, 1:70s).

It is interesting to note that the popular usage of 'midori' as a descriptor for both these images runs contrary to the findings outlined in Part 1 of the research (the word association exercise) which suggest that eyes can be described using 'ao', 'buruu' or 'guriin', but are not thought of as being 'midori'. When faced with the task of actually describing a green human eye, JNS did in fact use 'midori'. This would suggest that, while the mental image they have of eyes does not extend to their being 'midori', this term can in fact be employed as a colour denotational.

The results for these images suggest a tendency for the native term 'midori' to be favoured by younger informants and the loanword 'guriin' to be favoured by older informants. The evidence provided by these images also suggests that indeterminacy is a linguistic feature exclusive to older informants and that the choice of 'ao', although not common, is not influenced by either the age or gender variables.

Image No. 16 (new shoot)

Pertinent quotations obtained from informants (by informant number):

6 緑、青っぽい

3 8 新芽らしく青々とした緑色

3 緑、若葉色

1 0 若草色

2 4 グリーン

6. It's 'midori', 'ao'-ish.

38. It's a 'midori' which is very 'aoao' as one would expect from a new shoot.

3. 'midori', 'wakaba-iro' (the colour of young leaves)

10. 'wakakusa-iro' (the colour of young grass)

24. 'guriin'

Table 6.28 Image No. 16

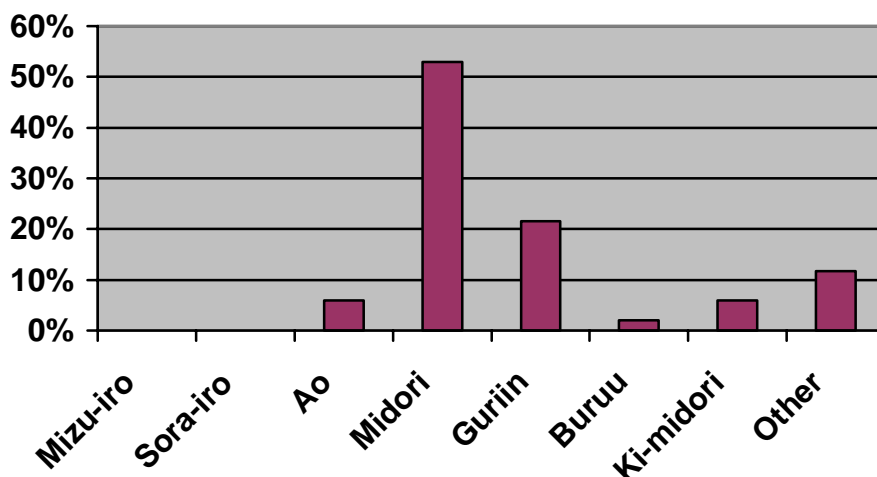
Description: new shoot

Total no. of instantiations: 51

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender M: 0 F: 0	Gender M: 0 F: 0	Gender M: 3 F: 0	Gender M: 16 F: 11	Gender M: 5 F: 6	Gender M: 0 F: 1	Gender M: 2 F: 1	Gender M: 5 F: 1
Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s	Age Teens 20s 30s 40s 50s 60s 70s
		1	4	11	1	2	1
		1	6	2	1	1	1
			2	1	1		4
		1	2	1	1		1
			2	5	1		1
Percentage 0%	Percentage 0%	Percentage 5.88%	Percentage 52.94%	Percentage 21.57%	Percentage 1.96%	Percentage 5.88%	Percentage 11.76%

* includes ‘wakaba-iro’ (young leaf colour) (2), ‘wakakusa-iro’ (young grass colour) (2), ‘kusa-iro’ (grass colour) (1) and ‘wakame-iro’ (seaweed colour) (1).

New Shoot



With 52.94% of references being ‘midori(-iro)’, this was the most popular descriptor for this image. While there was a balance of gender and age representation amongst informants, 23 of the 27 instantiations of this descriptor are attributable to informants under the age of 50, indicating that this term was a popular choice of descriptor amongst the younger JNS who participated in this research. By contrast, the use of the second most popular descriptor, ‘guriin’, (21.57% of responses) is largely attributable to informants in their 50s or above, with seven of the 11 instantiations of this term coming from this age category. ‘Ao’ accounted for 5.88% of colour descriptor usages and informants using this represented a balance of age brackets (20s, 30s and 60s). ‘Ki-midori’ (yellow-green) also accounted for 5.88% of colour descriptor usages. The term ‘buruu’ was errantly used by just one informant, a female in her 70s.

In the ‘other’ category the traditional ‘-iro’ description accounted for all entries and was the exclusive domain of informants aged 50 or above. A total of 11.76% of responses fell into the ‘other’ category. The expressions recorded in this category were ‘midori gakatta kusa-iro’ (‘midori’ tinged grass colour) (1:50s), ‘wakakusa-iro’ (young grass colour) (1:50s, 1:70s), ‘wakame-iro’ (young shoots colour’) (1:50s) and ‘wakaba-iro’ (young leaf colour) (1:50s, 1:60s).

This image is characterized by a small majority of informants describing it as ‘midori’, whilst the remaining 47.06% of responses were spread over five of the remaining categories provided. While ‘ao’ was generally supported across age and generational lines, the errant use of colour terms and the use of foreign loanwords were seen to be features of the speech of older informants.

Image No. 18 (peas)

Pertinent quotations obtained from informants (by informant number):

2 1 上にグリーン・ピースがのっけていて、真中に赤い花があります。グリーン・ピースは青、緑ですね。

4 5 緑の豆がまんじゅうの上のっかけています。

1 4 上にグリーン・ピースがのっけていますね、、、緑色の

2 緑がかった草色

21. There are 'guriin piisu' (green peas) on top and a red flower in the middle.
Green peas are 'ao', they're 'midori'.

45. There are 'midori' (coloured) peas on the rice cake.

14. There are 'guriin piisu' (green peas) on top of it. They are 'midori-iro'.

2. They are 'kusa-iro' (grass-coloured) with a 'midori' tinge.

Table 6.29 Image No. 18

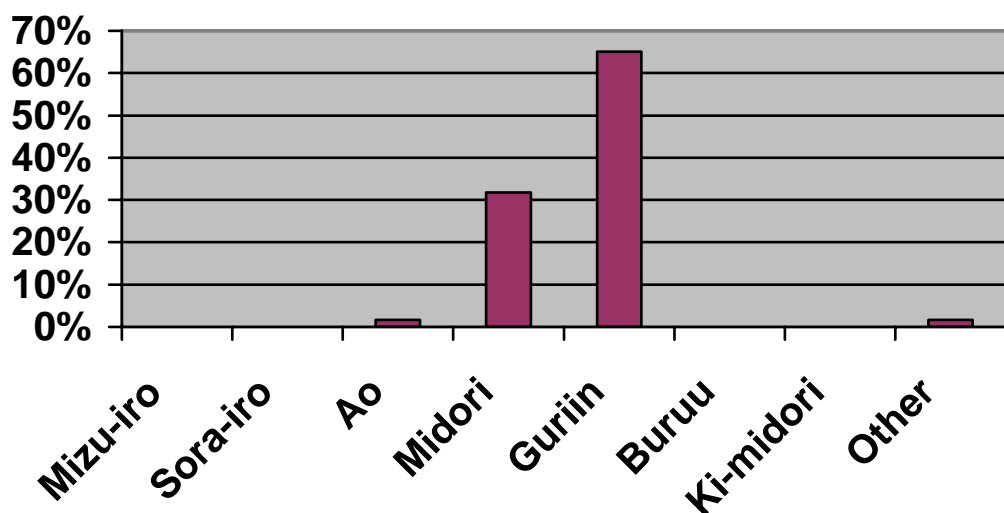
Description: peas

Total no. of instantiations: 63

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other						
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender						
M: 0	M: 0	M: 1	M:14	M: 22	M: 0	M: 0	M: 1						
F: 0	F: 0	F: 0	F: 6	F: 19	F: 0	F: 0	F: 0						
Age	Age	Age	Age	Age	Age	Age	Age						
Teens	Teens	Teens	Teens 3	Teens 4	Teens	Teens	Teens						
20s	20s	20s 1	20s 6	20s 15	20s	20s	20s						
30s	30s	30s	30s 6	30s 8	30s	30s	30s						
40s	40s	40s	40s 1	40s 3	40s	40s	40s						
50s	50s	50s	50s 1	50s 3	50s	50s	50s						
60s	60s	60s	60s 1	60s 3	60s	60s	60s						
70s	70s	70s	70s 2	70s 5	70s	70s	70s						
Percentage	0%	Percentage	1.59%	Percentage	31.75%	Percentage	65.08%	Percentage	0%	Percentage	0%	Percentage	1.59%

* 'kusa-iro' (grass colour) (1).

Peas



By far the most common description for the peas was 'guriin' (65.08% of responses). The quotes presented indicate that the pre-nominal usage of 'guriin' is

generally accepted as an integral part of the name of this vegetable ('guriin piisu' [green peas]). 'Midori' accounted for 31.75% of responses (across both genders and all age brackets), indicating that peas are widely regarded as being 'midori' although they are more generally referred to using the descriptor 'guriin'.

An element of 'liberal descriptor usage' is demonstrated by one informant in his 20s who used the three terms 'ao', 'midori' and 'guriin' when describing this image. The only term classified as 'other' was 'kusa-iro' (grass coloured), the single instantiation being attributable to a male in his 50s.

The very high percentage of responses indicating 'guriin' as a descriptor perhaps suggests a predisposition to using this term as a result of the influence of collocation. The term 'guriin piisu' (green peas) is a standard term used in the language in reference to peas, the term 'piisu' [peas] alone not being used or understood. It is possible that this collocational relationship between the terms 'guriin' and 'piisu' represents a predisposing factor influencing the JNS choice of descriptor.

For this image the level of the usage of the loanword 'guriin' is exceptionally high and suggests that the broad acceptance of this term as a descriptor is influenced by the collocational factor.

Image No. 21 (kimono)

Pertinent quotations obtained from informants (by informant number):

1 オレンジとグリーンですね

2 1 着物が緑やら、、、オレンジ、ピンクもありますね。

17 青色

1. It's 'orenji' and 'guriin'.

21. The kimono is 'midori' and... 'orenji' and 'pinku' too.

17. It's 'ao'.

Table 6.30 Image No. 21

Description: traditional formal kimono

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M: 19	M: 4	M: 1	M: 1	M: 0
F: 0	F: 0	F: 1	F: 14	F: 6	F: 0	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens 1
20s	20s	20s	20s 14	20s 1	20s	20s	20s
30s	30s	30s	30s 6	30s 2	30s 1	30s 1	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s	50s 3	50s 1	50s	50s	50s
60s	60s	60s	60s 2	60s 1	60s	60s	60s
70s	70s	70s 1	70s 2	70s 4	70s	70s	70s
Percentage	0%	Percentage	2.13%	Percentage	70.21%	Percentage	21.30%
Percentage	0%	Percentage	2.13%	Percentage	2.13%	Percentage	2.13%
Percentage		Percentage	2.13%	Percentage		Percentage	2.13%
Percentage		Percentage	2.13%	Percentage		Percentage	2.13%

* 'wakakusa-iro' (young grass colour) (1)

Traditional Formal Kimono

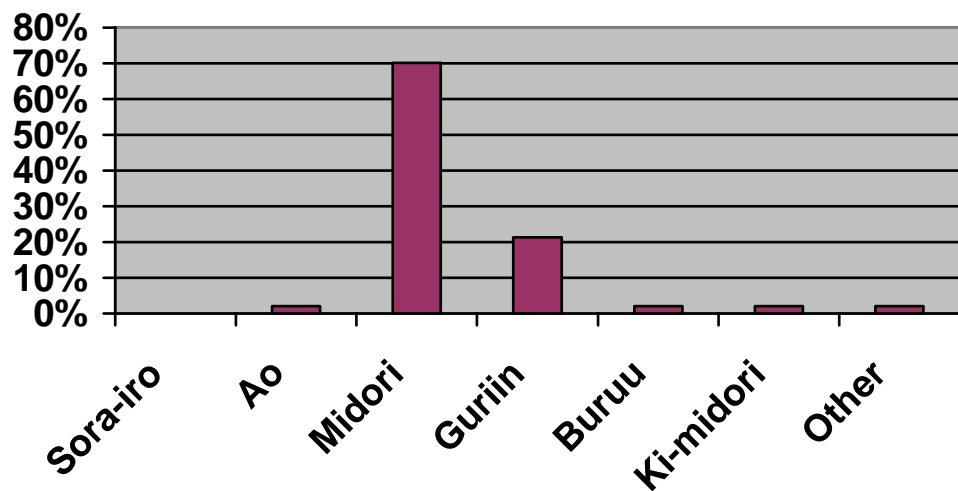


Image No. 21 (kimono's collar)

Only one informant (2.3% of responses), a woman in her 70s, described the collar of the kimono as being 'ao', while 33 informants (70.21% of responses - representing a gender and age balance) used 'midori' as a descriptor. 'Midori' was by far the more popular choice, yet 'ao' was still represented amongst the descriptors used.

Of the ten informants who used 'guriin', six were in their 50s or above. This again suggests that loanword usage is a feature more of the language of older informants than of younger ones. Furthermore, the quotes presented indicate that it is not the case that either loanwords or traditional terms must be paired together, as we witness both 'midori' and 'guriin' being combined with the loanword expression 'orenji' (orange) in descriptions of the kimono.

Although clearly green, the collar was described as 'buruu' by one informant, a male in his 30s. This can be considered an errant usage of the term. It was also a male in his 30s who described the collar as 'ki-midori', thereby adding weight to the suggestion made by Stanlaw (1987) that this term, by dint of its level of salience, should be considered as a candidate for 'basic colour term' status in Japanese. The only response to be categorized as 'other' was 'wakakusa-iro' (young grass colour). This was, uncharacteristically, attributable to a young informant in her teens.

This image is characterized by a 70.21% majority of informants describing it as 'midori', with 21.30% describing it as 'guriin' and the remaining 8.52% of responses being spread evenly over 4 of the remaining categories provided.

The descriptions provided for this image indicate that, while very unusual, it is possible for errant usages of loanwords and usages of the traditional '-iro' expressions to be witnessed exclusively in the speech of younger informants.

Image No. 27 (frog)

Pertinent quotations obtained from informants (by informant number):

2 2 緑色のが、草につかまって、こちらを見えています。竹は青色で、葉っぱがたくさんあります。

2 7 蛙は黄緑、葉っぱは緑

30 青々しい竹に、これまた、黄緑の苦手な雨蛙、、のっているのが見えます。

38 森青蛙、草の濃い青、緑と蛙の薄い緑色、、なかなかきれいなコントラストになっています。

5 蛙の青さよりも青いですね、竹の色は。

22. Something 'midori-iro' is perched on the vegetation and facing this way. The bamboo is 'ao' and it has lots of leaves.

27. The frog is 'ki-midori' (yellow green) and the leaves are 'midori'.

30. [in this picture] we can see a 'ki-midori' (yellow green) rain frog (not a favourite of mine) on some bamboo which is very 'aoao'.

38. It's a forest 'ao-gaeru' ('ao' frog), the deep 'ao', 'midori' of the vegetation and the light 'midori' colour of the frog form a very pleasing [colour] contrast.

5. The colour of the bamboo is even more 'aoi' than the 'ao' of the frog.

Table 6.31 Image No. 27

Description: frog

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 5	M: 16	M: 3	M: 0	M: 3	M: 0
F: 0	F: 0	F: 5	F: 7	F: 4	F: 0	F: 6	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens 1	Teens
20s	20s	20s	20s 8	20s 1	20s	20s 5	20s
30s	30s	30s 3	30s 7	30s	30s	30s 1	30s
40s	40s	40s 1	40s 1	40s 1	40s	40s 1	40s
50s	50s	50s 1	50s 1	50s 2	50s	50s 1	50s
60s	60s	60s 3	60s	60s	60s	60s	60s
70s	70s	70s 2	70s 3	70s 3	70s	70s	70s 1
Percentage	0%	Percentage	20.41%	Percentage	46.94%	Percentage	14.29%
	Percentage	0%	Percentage	0%	Percentage	18.37%	Percentage
							2.04%

* 'wakakusa-iro' (young grass colour) (1)

Frog

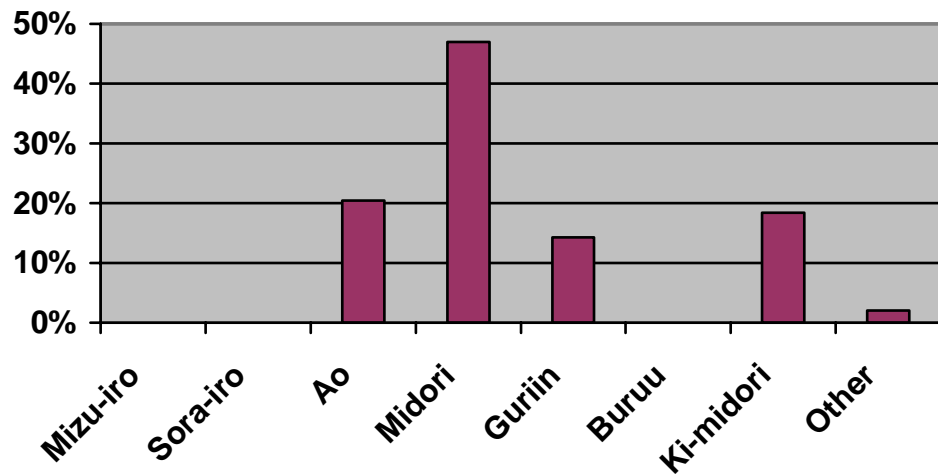


Image No. 27 (frog)

The descriptions of this are characterized by a spread over many colour term categories. The most popular response was ‘midori’ (46.94%) followed by ‘ao’ (20.41%), ‘ki-midori’ (18.37%) and ‘guriin’ (14.29%). In addition, one informant in her 70s suggested ‘wakakusa-iro’ (young grass colour) in her description of this item. The frog was referred to by the name ‘ao-gaeru’ (‘ao’ frog) or alternatively ‘mori ao-gaeru’ (a forest ‘ao’ frog [see quote from Informant 38]) by a number of informants, indicating a collocational relationship between the terms ‘ao’ and ‘kaeru’ (the initial voiceless plosive becoming voiced when ‘kaeru’ is preceded by ‘ao’). The quote attributed to Informant 5, by contrast, indicates that ‘ao’ is being used denotatively, as a reference to colour. For both the terms ‘ao’ and ‘midori’ responses represent informants of both genders and an age bracket spread. While there was also a spread across age brackets for ‘guriin’, it is noteworthy that five of the seven responses in this category were provided by older informants (50s +).

Table 6.32 Image No. 27

Description: bamboo grass

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 4	M: 19	M: 2	M: 0	M: 0	M: 2
F: 0	F: 0	F: 1	F: 14	F: 6	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 14	20s	20s	20s	20s
30s	30s	30s 2	30s 6	30s 2	30s	30s	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s	50s 2	50s 1	50s	50s	50s 2
60s	60s	60s 2	60s 2	60s	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage	10.42%	Percentage	68.75%	Percentage	16.67%
	Percentage	0%	Percentage	0%	Percentage	0%	Percentage
							4.16%

* 'sasa-iro' (bamboo grass colour) (1) 'kusa-iro' (grass colour) (1)

Bamboo Grass

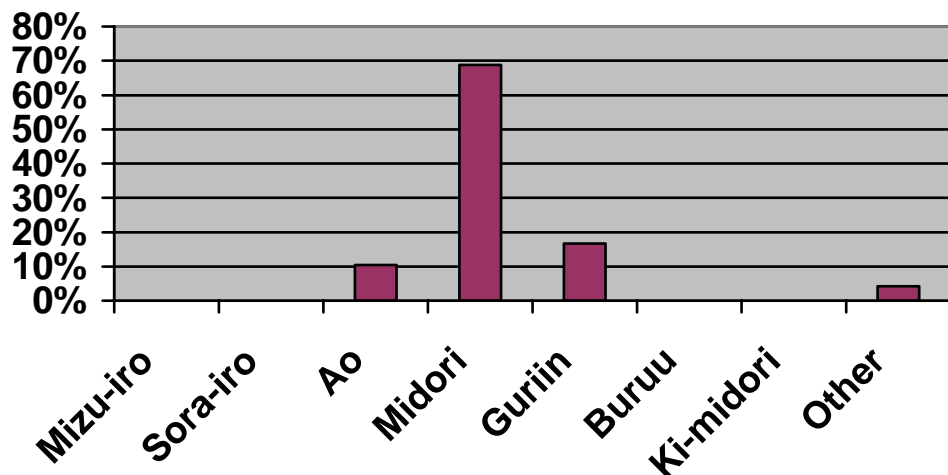


Image No. 27 (bamboo grass)

The most popular descriptor, commanding 68.75% of responses and representing a gender balance and spread of ages, was ‘midori’. Four of the eight informants who used the descriptor ‘guriin’ (16.67% of responses) were in their 70s, while a total of five respondents (1:20s, 2:30s and 2:60s) used ‘ao’ as a descriptor. The readily understandable, but prosaic, description ‘sasa-iro’ (bamboo grass colour) (1:50) and the more general expression ‘kusa-iro’ (grass colour) (1:50) were suggested by informants in their 50s.

The quotations from Informants 22 and 5 indicate that ‘ao’ is being used denotatively (as a colour descriptor) and although bamboo (‘take’) can be referred to as ‘ao-dake’ (‘take’ undergoing a phonological modification from the voiceless to the voiced plosive), this descriptor was not provided in relation to this image by any informant. The vegetation in question, while a member of the bamboo family, is usually referred to in Japanese as ‘sasa’ and generally grows only to about knee height. The cultural schema for ‘take’, on the other hand, suggests towering fronds.

The quotation from Informant 22 suggests an attributive aspect to the descriptor ‘ao’, namely that it ‘has many leaves’.

With 10.42% of responses being ‘ao’, it would appear that the level of collocational influence involved is something which is referent dependent, it being considerably less for this image than was the case for the frog (where 20.41% of responses incorporated the descriptor ‘ao’). We witness here also a broad based use of the native terms ‘ao’ and ‘midori’ and a tendency for the loanword expression (‘guriin’) and the ‘-iro’ type expressions to be prominent in the descriptions provided by older informants.

Image No. 31 (cheese)

Pertinent quotations obtained from informants (by informant number):

8 好きなんですよ。子供の時は嫌いだったんですけども、最近、ブルー・チーズ、、、 「青かび」といいますね。色は緑ですね。

10 これはブルー・チーズですけど、まあ、、、かびは普通は、あのう、緑、深緑色ですか。日本では「青かび」といいます。青いかび。

22。チーズ、ブルー・チーズですか。青かびのブルー・チーズ、、、
かびは青い色です。

8. I like it, you know. I never used to as a child, but these days...it's 'buruu chiizu' (blue cheese) ...we call it 'ao kabi' ('ao' mould). The colour is 'midori'.

10. This is 'buruu chiizu' (blue cheese). Mould is usually 'midori', a deep 'midori' colour, right? In Japan it's called 'ao kabi' ('ao' mould). It's an 'aoi' mould.

22. It's cheese, probably 'buruu chiizu' (blue cheese) I would say... 'buruu chiizu' (blue cheese) with 'ao kabi' ('ao' mould). The mould is 'aoi' in colour.

Table 6.33 Image No. 31

Description: cheese

Total no. of instantiations: 76

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 15	M: 7	M: 2	M: 11	M: 0	M: 7
F: 0	F: 0	F: 13	F: 8	F:	F: 9	F: 0	F: 4
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens 3	Teens	Teens 1	Teens	Teens
20s	20s	20s 5	20s 6	20s	20s 5	20s	20s 6
30s	30s	30s 8	30s 3	30s	30s 6	30s	30s 1
40s	40s	40s 2	40s	40s 1	40s 3	40s	40s
50s	50s	50s 4	50s 2	50s	50s 2	50s	50s
60s	60s	60s 1	60s	60s	60s 1	60s	60s 2
70s	70s	70s 4	70s 1	70s 1	70s 2	70s	70s 2
Percentage	0%	Percentage	36.84%	Percentage	19.74%	Percentage	2.63%
	Percentage	0%	Percentage	26.32%	Percentage	0%	Percentage
							14.47%

Cheese

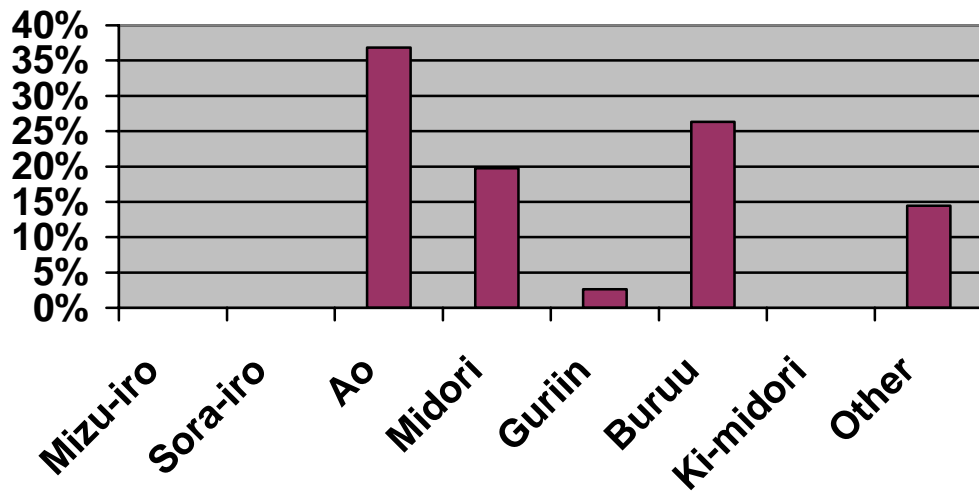


Image No. 31 (cheese wheel)

This image is characterized by a wide range of descriptors, the most popular being ‘ao’ (36.84%). There is evidence to suggest, however, that the perception of certain respondents could have been influenced by collocational factors (Informants 8 and 10 make reference to ‘ao-kabi’ [‘ao’ mould]), while the responses of others are indisputably denotational (Informant 22 states that the mould is ‘aoi’ in colour). The second most popular descriptor was ‘buruu’ (26.32%). 19.74% of responses incorporated the descriptor ‘midori’, and 2.63% of responses were ‘guriin’. These terms were not necessarily treated in a mutually exclusive way, however, there being numerous instances of multiple descriptors being used by individual informants. The quotation from Informant 10, for example, indicates that while the cheese is referred to as ‘buruu chiizu’ (blue cheese), the mould itself is ‘ao-kabi’ (‘ao’ mould) and its colour is ‘midori’. This response is typical of those acknowledging an interplay amongst these terms. 11 responses (14.47%) were classified as ‘other’ and these included a wide variety of descriptors including ‘kuro’ (black) (six references) and ‘aomi wo obita shirosa’ (white tinged with ‘ao’), ‘hai-iro’ (ash colour, i.e. grey), ‘guree’ (grey) and ‘midori-ao’ (one reference each). A balanced representation of age and gender was indicated for all descriptor categories used. In relation to this image JNS proved themselves quite comfortable with a considerable spread of descriptors.

Image No. 32 (lawn)

Pertinent quotations obtained from informants (by informant number):

8 一面青い芝生だといいますね。青空に学校の校舎があつて、、、

2 1空はもう雲一つない青、青ですね、、、緑の芝生がきれいに整理、整理というか、されていますね。

3 8芝の葉がよく茂っていて、青々として、、、空は真っ青、、、

3 9お天気がいいから空は青空です。芝生はとても手入れがされているような、満遍なくグリーンで、、、

10 芝生はですね、これは青い芝生といいますね。芝生は青々としてい
るとか、、、(空は)青い空。

8. We call this a carpet of 'aoi-shibafu' ('aoi' lawn). There's an 'ao-zora' ('ao'
sky) and there's a school building there....

21. Not a cloud in the 'aoi' sky, it's 'aoi'. ..The 'midori' lawn is well looked
after, if I can use the expression 'well looked after' here.

38. The leaves of the grass are growing nice and healthily, very 'aoao', and the
sky is 'massao' (bright 'ao').

39. The sky is 'ao' - there's an 'ao-zora' - because the weather is so nice. The
lawn is a well cared for 'guriin' and covers the whole floor area.

10. Okay, the lawn...we call this an 'aoi-shibafu' ('aoi' lawn). The grass could
be described as being 'aoao'... and the sky is 'aoi'.

Table 6.34 Image No. 32

Description: lawn

Total no. of instantiations: 53

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 4	M: 18	M: 6	M: 0	M: 0	M: 1
F: 0	F: 0	F: 5	F: 14	F: 4	F: 0	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 2	20s 12	20s 2	20s	20s	20s
30s	30s	30s 3	30s 6	30s 2	30s	30s	30s
40s	40s	40s	40s 2	40s	40s	40s	40s
50s	50s	50s 2	50s 3	50s 1	50s	50s	50s 1
60s	60s	60s 1	60s 2	60s 1	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s 1
Percentage	0%	Percentage	16.98%	Percentage	60.38%	Percentage	18.87%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	3.77%

* 'wakakusa-iro' (young grass colour) (2)

Lawn

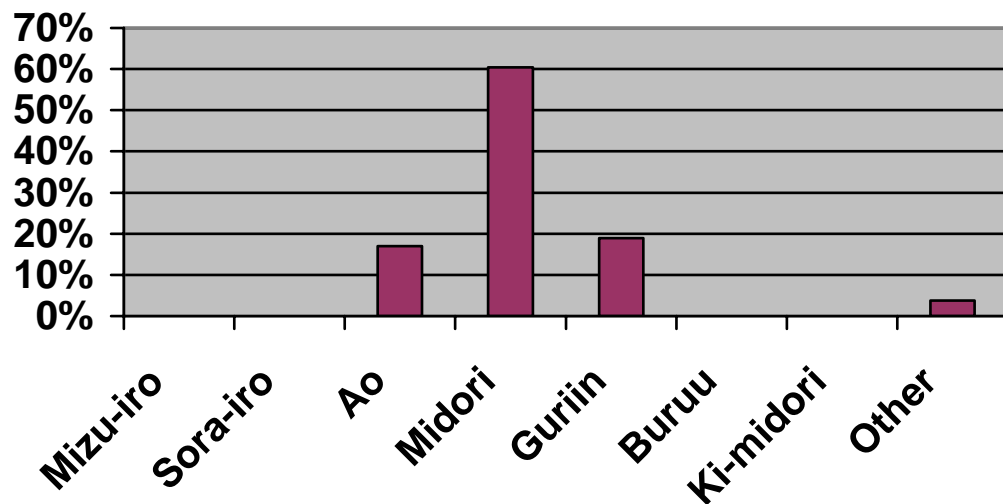


Image No. 32 (lawn)

Four colour terms were used to describe this verdant lawn. They were ‘midori’ (60.38%), ‘guriin’ (18.87%), ‘ao’ (16.89%) and ‘wakakusa-iro’ (young grass colour) (3.77%). While for ‘ao’, ‘midori’ and ‘guriin’ a balance of gender and age is evident amongst informants, the terms ‘ao’ and ‘midori’ are supported more strongly by younger respondents, with 24 out of 32 responses for ‘midori’ and six out of nine responses for ‘ao’ coming from informants in their 40s or below. The loanword ‘guriin’, on the other hand, is favoured by older informants (six out of ten responses deriving from informants in the 50+ age category). Both instantiations of ‘wakakusa-iro’ derived from older informants, a male in his 50s and a female in her 70s.

The quotations from Informants 8, 38 and 10 indicate that ‘ao’, while sometimes undergoing morphological change (e.g. ‘massao’ [strong ‘ao’]), is acceptable as a descriptor for both the lawn and the sky. A level of collocational binding is suggested in the quotations from Informants 8 (we call this... ‘aoi shibafu’/ there’s an ‘ao-zora’) and 10 (we call this an ‘aoi shibafu’). The inference can also be drawn from the quotations that ‘aoi shibafu’ suggests an expanse of lawn (Informant 8) which, furthermore, is healthy in appearance (Informant 38). Informant 21, by contrast, refers to the lawn as being well looked after and ‘midori’, while Informant 39 acknowledges the expansiveness and high level of maintenance of the lawn, but chooses the term ‘guriin’ to describe it.

Image No. 33 (rice field)

Pertinent quotations obtained from informants (by informant number):

2 1 青い稲がもう 3 0 0—

4 0 0メートル以上長い水田がありますね。稲はもう真緑ですかね、、、空も青いですね、、、山は深い青ですかね、、、稲は緑ですね。

8 これも「青々とした」といいますね。たんぼって。(背景は)青山ですね。これも、、、定型、、、何というか、決まった言い方で「青い山、白い雲」と言う。曇っていますね。それでも空は青いですね、、、(稲の)色は緑だと思います、色と聞かれば、

38 まだ全然稲穂はついておりませんし、青い葉が伸びて来たというだけの水田のように見えますですね。

39 稲の緑は鮮やかな芝生のような緑色をしています。

10 「青々としている水田」というふうにありますね。で、青々とした山なみ、、、空は空色ですね。水色とか空色ですね。

21. This is a very long rice padi, some 300 or 400 meters length, with 'aoi' rice plants. You could say the rice plants are 'ma-midori' (bright 'midori') I guess...the sky also is 'aoi'...and the mountains are a deep 'ao'. The rice plants are 'midori'.

8. This can be described as being 'aoao'. It's a rice field. In the background there are 'ao' mountains. These are called...typically...what can I call this, a fixed expression if you like, 'aoi yama shiroi kumo' ('aoi' mountains and white clouds). It's somewhat cloudy but even so the sky is 'aoi'....the colour of the rice plants I would say is 'midori', if I were asked the colour as such...

38. As yet there is no sign of rice kernels forming. It looks like a picture of nothing more than a rice padi with 'aoi' leaves growing nicely.

39. The 'midori' of the rice plants is like the bright 'midori' one would find in a lawn.

10. We refer to this as an 'aoao' rice padi. And there is an 'aoao' range of mountains visible. The sky is 'sora-iro' (sky-coloured)...either 'sora-iro' (sky-coloured) or 'mizu-iro' (water-coloured).

Table 6.35 Image No. 33

Description: rice field (rice)

Total no. of instantiations: 50

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 5	M: 17	M: 4	M: 0	M: 0	M: 2
F: 0	F: 0	F: 6	F: 12	F: 4	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 4	20s 9	20s 1	20s	20s	20s
30s	30s	30s 2	30s 7	30s 1	30s	30s	30s
40s	40s	40s	40s 2	40s	40s	40s	40s
50s	50s	50s 2	50s 2	50s	50s	50s	50s 1
60s	60s	60s 2	60s 2	60s 2	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s 1
Percentage	0%	Percentage	22.00%	Percentage	58.00%	Percentage	16.00%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage		Percentage	4.00%	Percentage		Percentage	

* 'kusa-iro' (grass colour) (1), 'wakaba no iro' (young leaf colour) (1)

Rice Field (rice)

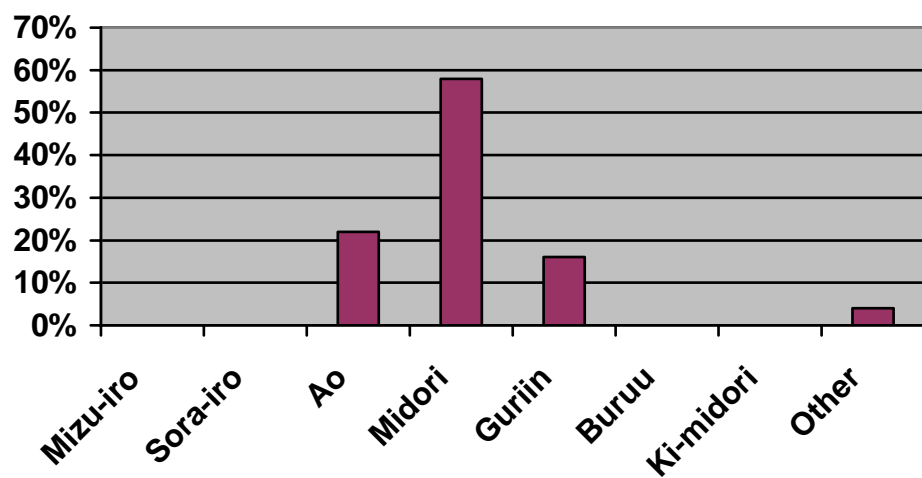


Image No. 33 (rice field)

‘Midori’ and ‘ao’ accounted for 58.00% and 22.00% of responses respectively. In both cases the responses received represented both genders and a balance of age brackets. In other words, JNS from a broad range of age brackets felt it appropriate to describe the rice field using ‘ao’. This means that, when this clearly green colour is presented in this contextualized environment (this picture), ‘ao’ is far more broadly accepted as a suitable descriptor (across all age brackets) than is the case when it (the same colour) is presented in a decontextualized environment, such as in Images 4 (base), 19 (LHS) and 28 (bottom). In these situations 0% of responses indicated ‘ao’ as a suitable descriptor. The same colour was also presented in image 15 (oblong), with two informants, a female in the 20s and a male in the 60s (representing 4.16% of responses), suggesting ‘ao’ as a descriptor. It would appear that, depending on contextualization, the JNS judgment in terms of the suitability of ‘ao’ as a descriptor varies considerably. The degree of perceived suitability of ‘ao’ in regard to a number of referents, and the reasons for such judgments, will be the focus of attention in Part 3 of the research.

‘Guriin’ was the third most popular choice of descriptor (16%), with six of the eight instantiations being attributable to informants in their 60s and 70s. In addition there were two examples of ‘other’ terms being used. These were ‘wakaba-iro’ (young leaf colour) and ‘kusa-iro’ (grass colour), again both attributable to older informants (1:50s, 1:70s).

The quotation from Informant 21 makes reference to the expansiveness of the rice field immediately before referring to the rice plants as ‘aoi’, perhaps suggesting a connotative relationship between spaciousness and ‘aoi-ness’. Later he describes the rice plants as being ‘midori’ and ‘ma-midori’ (bright ‘midori’). While the implication in the quotation given by Informant 38 is that ‘aoi’ leaves are ones which are growing healthily, the quotation attributed to Informant 8 points out that ‘midori’ is the response he’d offer if asked to describe the colour of the rice plants ‘as such’.

Table 6.36 Image No. 33

Description: rice field (mountains)

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M: 4	M: 0	M: 13		M: 2		M: 1		M: 3		M: 0		M: 6	
F: 0	F: 2	F: 15		F: 0		F: 0		F: 2		F: 0		F: 0	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens	Teens	Teens 3		Teens		Teens		Teens		Teens		Teens 1	
20s 2	20s 1	20s 11	20s 2	20s	20s	20s	20s	20s	20s	20s	20s 3		
30s 1	30s	30s 8	30s	30s	30s	30s	30s	30s	30s	30s	30s 1		
40s	40s	40s	40s	40s	40s	40s	40s 1	40s	40s	40s	40s 1		
50s	50s	50s 2	50s	50s	50s	50s	50s 2	50s	50s	50s	50s		
60s	60s	60s 1	60s	60s	60s	60s	60s 1	60s	60s	60s	60s		
70s 1	70s 1	70s 3	70s	70s	70s 1	70s	70s 1	70s	70s	70s	70s		
Percentage	8.33%	Percentage	4.16%	Percentage	58.33%	Percentage	4.16%	Percentage	2.08%	Percentage	10.42%	Percentage	0%
Percentage		Percentage		Percentage		Percentage		Percentage		Percentage		Percentage	12.50%

* includes 'buruu and midori mix' (1)

Rice Field (mountains)

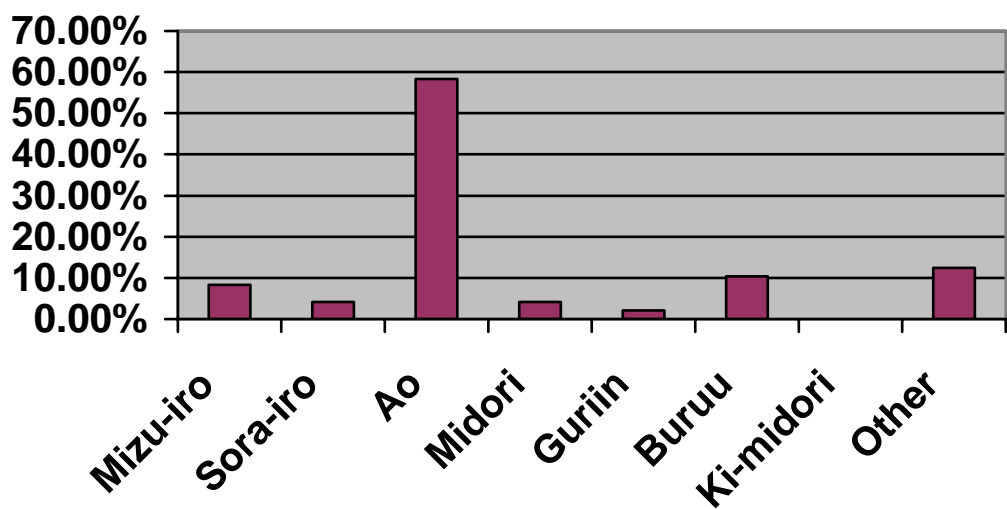


Image No. 33 (mountains)

'Ao' was the most popular response (58.33%) for this referent, and represented both genders and an age bracket spread. By contrast, 'buruu' (10.42%) was a response recorded exclusively by informants over 40 years of age. 'Mizu-iro' accounted for 8.33% of responses and 'sora-iro' for 4.16%. Two informants in their 20s used the descriptor ('midori') and one in his 70s recorded an errant use of 'guriin'. 12.50% of responses were classified as 'other' (including 'buruu and midori mixed').

While in Part 1 of the research (the association test) the conclusion was drawn that 'mountains can be "ao", "guriin" or "midori" but not "buruu"', the empirical usages recorded for Image No. 33 indicate that the descriptor 'buruu' is possible, at least when reporting on an image such as this.

Given the fact that 'Aoyama' ('ao' mountain) is a well known suburb in Tokyo, the name of a major traffic thoroughfare in Tokyo and a common Japanese surname, it is perhaps surprising that the percentage of responses describing these mountains as 'ao', is not considerably higher than the 58.33% recorded here.

Table 6.37 Image No. 33

Description: rice field (sky)

Total no. of instantiations: 23

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender
M: 1	M: 1	M: 7		M: 0		M: 0		M: 2		M: 0		M: 0
F: 4	F: 0	F: 5		F: 0		F: 0		F: 2		F: 0		F: 1
Age	Age	Age		Age		Age		Age		Age		Age
Teens 1	Teens	Teens 2		Teens		Teens		Teens		Teens		Teens
20s 3	20s	20s 2		20s		20s		20s 1		20s		20s 1
30s	30s	30s 3		30s		30s		30s		30s		30s
40s	40s	40s		40s		40s		40s		40s		40s
50s 1	50s	50s 1		50s		50s		50s 1		50s		50s
60s	60s 1	60s 1		60s		60s		60s 1		60s		60s
70s	70s	70s 3		70s		70s		70s 1		70s		70s
Percentage	21.74%	Percentage		4.35%		Percentage		52.17%		Percentage		0%
		Percentage		0%		Percentage		0%		Percentage		17.39%
		Percentage		0%		Percentage		17.39%		Percentage		0%
		Percentage		4.35%		Percentage		4.35%		Percentage		

Rice Field (sky)

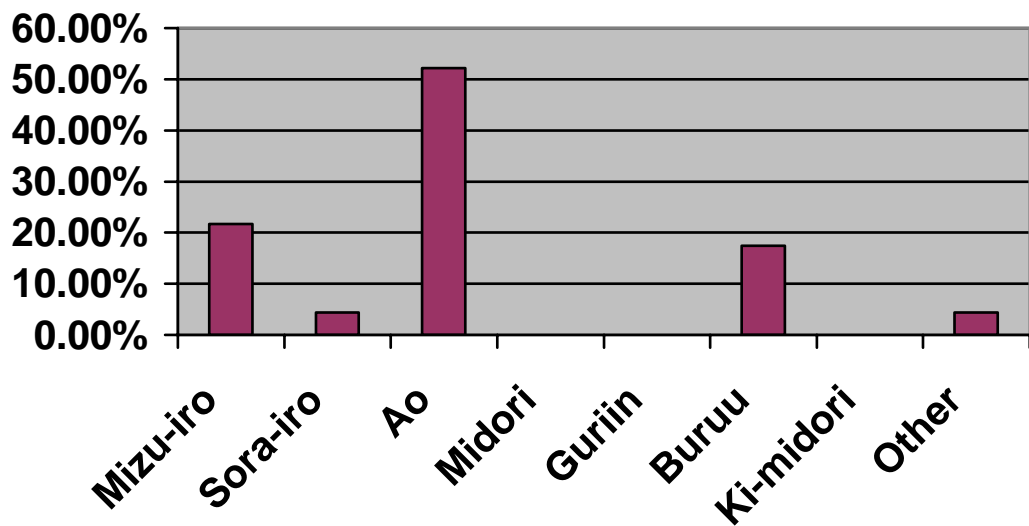


Image No. 33 (rice field: sky)

‘Ao’ and ‘mizu-iro’ were the most popular descriptors for this image, recording 52.17% and 21.74% of responses respectively. For both these terms both genders and a considerable spread of informants’ ages were represented in the responses received. The third most popular response was ‘buruu’ (17.39%) with three of the four responses deriving from informants in their 50s or above.

The salience of ‘mizu-iro’ as a descriptor for this sky lends weight to the argument posited by Stanlaw (1987) that ‘mizu-iro’ perhaps should be considered as a candidate for basic colour term status in Japanese.

Despite the fact that it is a light blue sky which is being described, only one informant used the descriptor ‘sora-iro’ (literally ‘sky blue’ [light blue]) in relation to this image.

As was the case for the rice field and mountains (Image No. 33 [above]), the use of ‘ao’ to describe the sky in this picture is something which cuts across generational and gender categories.

The fact that 69.56% of responses were either ‘ao’ or ‘buruu’ accords with the finding in Part 1 of the research which identifies ‘the sky’ as being a prototype for both these categories.

Image No. 34 (sea)

Pertinent quotation, obtained from Informant 4:

4 (空の色は) 青、 、 、 (海の色は) 空の色よりもっとこゆい青

4. (The colour of the sky is) ‘ao’... (the colour of the sea is) a much deeper ‘ao’ than the sky.

Table 6.38 Image No. 34

Description: uninhabited island (sea)

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 16	M: 0	M: 0	M: 7	M: 0	M: 2
F: 0	F: 0	F: 14	F: 0	F: 0	F: 2	F: 0	F: 3
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s	20s	20s 14	20s	20s	20s 1	20s	20s
30s	30s	30s 7	30s	30s	30s 2	30s	30s
40s	40s	40s 1	40s	40s	40s 1	40s	40s 1
50s	50s	50s 2	50s	50s	50s 1	50s	50s 1
60s	60s	60s 1	60s	60s	60s 1	60s	60s
70s	70s	70s 1	70s	70s	70s 3	70s	70s 3
Percentage	0%	Percentage 68.18%	Percentage 0%	Percentage 0%	Percentage 20.45%	Percentage 0%	Percentage 11.36%

* includes 'kon' (navy blue) (2) and 'buruu burakku' (blue black) (1)

Uninhabited Island (sea)

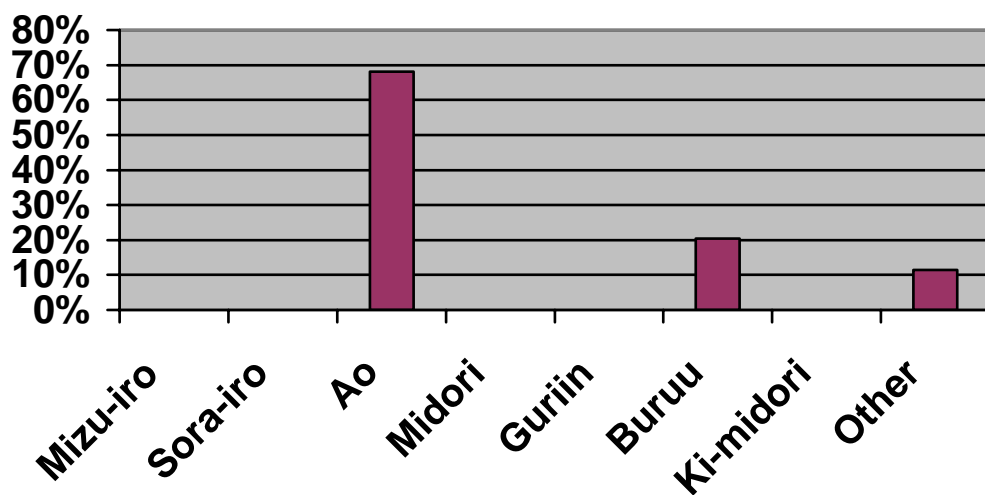


Image No. 34 (sea)

‘Ao and ‘buruu’ (68.18% and 20.45% respectively) together accounted for 88.63% of responses. Both these descriptors were chosen by people from all age groups, although a propensity was evident for a disproportionately high number of older speakers to use the loanword ‘buruu’. Similarly, the only example of a loanword expression to appear in the ‘other’ category was ‘buruu burakku’ (blue black), and this was offered by a male in his 70s.

With nearly seven out of every ten respondents using the term ‘ao’ to describe this image, it is evident that empirical usage aligns itself with the results of the word association exercise part of this research (Part 1) which unequivocally identified the sea as a referent which is prototypically ‘ao’. Similarly the fact that one in five informants described this image as ‘buruu’ accords with the finding that the sea is also considered prototypically ‘buruu’.

Image No. 34 (sky)

Pertinent quotations obtained from informants (by informant number):

3 (空の上の方) スカイブルー

4 (空の色は) 青、、、 (海の色は) 空の色よりもっとこゆい青。

8 青々とした空、、、真っ青。

3. (the top part of the sky) ‘sukai buruu’ (sky blue).

4. (The colour of the sky is) ‘ao’... (the colour of the sea is) a much deeper ‘ao’ than the sky.

8. The sky is ‘aoao’. It is ‘massao’ (bright ‘ao’).

Table 6.39 Image No. 34

Description: uninhabited island (sky)

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao		Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender		Gender	Gender	Gender	Gender	Gender
M: 2	M: 0	M: 19		M: 0	M: 0	M: 3	M: 0	M: 1
F: 0	F: 0	F: 17		F: 1	F: 0	F: 5	F: 0	F: 1
Age	Age	Age		Age	Age	Age	Age	Age
Teens	Teens	Teens 4		Teens	Teens	Teens	Teens	Teens
20s 1	20s	20s 13	20s	20s	20s	20s 3	20s	20s
30s 1	30s	30s 8	30s	30s	30s	30s	30s	30s
40s	40s	40s 3	40s	40s	40s	40s 1	40s	40s
50s	50s	50s 4	50s	50s	50s	50s	50s	50s
60s	60s	60s 2	60s	60s	60s	60s 1	60s	60s
70s	70s	70s 2	70s	70s 1	70s	70s 3	70s	70s
Percentage	Percentage	Percentage		Percentage	Percentage	Percentage	Percentage	Percentage
4.08%	0%	73.47%		2.04%	0%	16.32%	0%	4.08%

Uninhabited Island (sky)

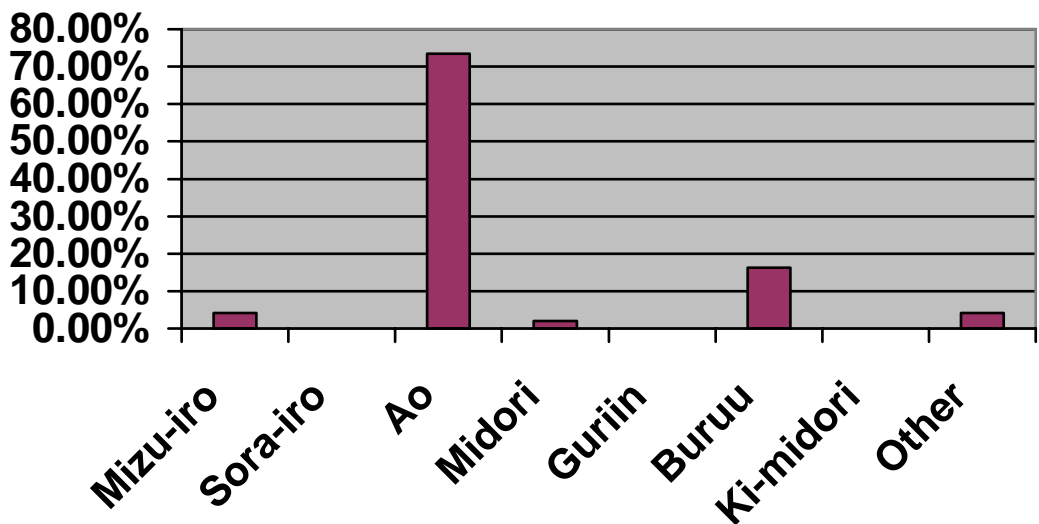


Image No. 34 (sky)

As was the case for the sea (Image No. 34), ‘ao’ and ‘buruu’ represented the lion’s share of responses (73.47% and 16.32% respectively). Again, as with the situation for the sea (Image No. 34, there is evidence that the empirical usage of ‘ao’ aligns itself closely with the results of the word association exercise part of this research, which unequivocally identified the sky as being prototypically ‘ao’. The quotation attributed to Informant 8 (‘The sky is “aoao”. It is “massao” [strong “ao”]’) would appear to reflect this aspect of the ‘ao’ cognitive schema. The use of ‘ao’ for this image cuts across gender and age variables.

A total of 16.32% of responses were ‘buruu’, with this response again exhibiting a disproportionately high level of usage by older informants. Categorized under ‘buruu’ is one instantiation of the expression ‘sukai buruu’ (sky blue), gleaned from an interview with a man in his 60s. The loanword expression ‘buruu burakku’ (blue black), was also offered by an older informant, a male in his 70s. Two informants (4.08%) described the sky in this image as being ‘mizu-iro’ while an errant usage of the term ‘midori’ as a descriptor was recorded by a female informant in her 70s.

Image No. 35 (bamboo grove)

Pertinent quotations obtained from informants (by informant number):

2 8 竹林の中に立っています。斜面ですね。竹はいわゆる竹林の青竹という感じですね。勿論色はグリーンですが、、、はい。

3 0 青々と育っている。

1 (竹林の色) その表現は「緑」といいます。やっぱり「青」と表現しますけどね、、、やっぱり濃いグリーンみたいに見えますけど、、、光りによって黒に近い、、、

3 5 青竹というんですかこれは青竹。(色は)グリーン、と若草色ですか。

28. He's standing in the middle of a bamboo grove, and the ground is on a slope. The bamboo is what we call the 'ao dake' ('ao' bamboo) one finds in such a grove. The colour, of course, is 'guriin'that it is.

30. It is growing very 'aoao'.

1. (For the colour of the bamboo grove) we'd use the expression 'midori'. We describe this as being 'ao', as you know, but it appears as a dark 'guriin', in parts nearly 'kuro' (black), depending on how the light hits it.....

35. This is what we'd call 'ao dake' ('ao' bamboo), it's 'ao dake'. (The colour is) 'guriin', would you perhaps call it 'wakakusa-iro' (young grass colour)?

Table 6.40 Image No. 35

Description: bamboo grove

Total no. of instantiations: 53

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 6	M: 18	M: 4	M: 0	M: 0	M: 1
F: 0	F: 0	F: 5	F: 14	F: 5	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 3	20s 12	20s 2	20s	20s	20s
30s	30s	30s 4	30s 7	30s 1	30s	30s	30s
40s	40s	40s 2	40s 1	40s	40s	40s	40s
50s	50s	50s 2	50s 3	50s 2	50s	50s	50s 1
60s	60s	60s	60s 2	60s	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage	20.76%	Percentage	60.38%	Percentage	16.98%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage		Percentage		Percentage		Percentage	1.89%

* 'wakakusa-iro' (young grass colour) (1)

Bamboo Grove

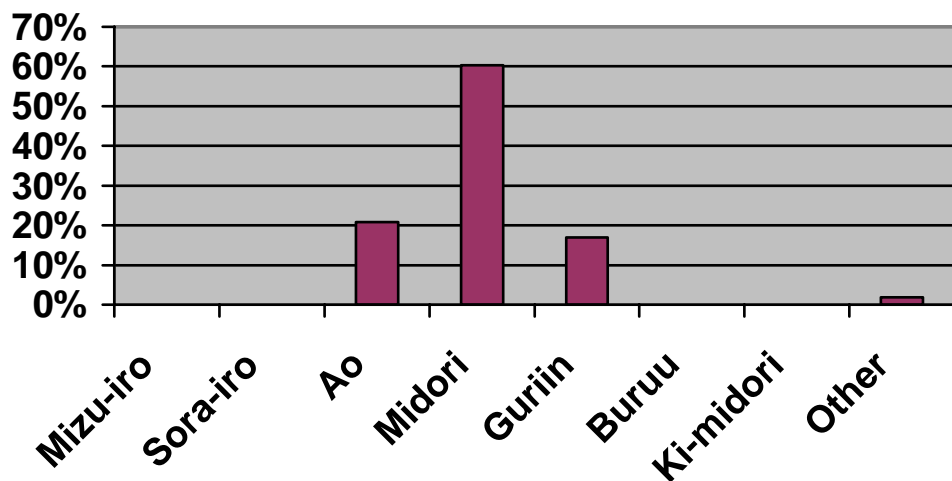


Image No. 35 (bamboo grove)

‘Midori’ was the most popular descriptor for this image (60.38%), followed by ‘ao’ (20.76%) and ‘guriin’ (16.98%). In contrast to the usage of the native terms ‘midori’ and ‘ao’, which was largely attributable to younger respondents (40s and below), the usage of the loanword ‘guriin’ was characteristic of descriptions given by those in their 50s or above (six of nine instantiations). One male in his 50s used the descriptor ‘wakakusa-iro’ (young grass colour).

Informant 30 implies that vigorous, healthy growth could be described as ‘aoao’, while the quotations provided by Informants 28 and 35 indicate that some responses could have been influenced by collocational factors (the expression ‘ao-dake’ meaning ‘ao’ bamboo). Both these informants, however, described the bamboo’s colour, as such, as ‘guriin’. Collaborators in my research have suggested that the mental picture people have of bamboo aligns itself with the image ‘ao’ portrays (竹をいう時は「青」というイメージがあります ’take wo iu toki wa “ao” toiu imeeji ga arimasu’). Informant 1, a female in her 50s, is quoted using all three descriptors ‘midori’, ‘ao’ and ‘guriin’ in addition to ‘kuro’ (black), thus indicating the validity of each in relation to her personal idiolect.

Image No. 36 (ducks)

Pertinent quotations obtained from informants (by informant number):

1 頭の部分はそうですね、、黒、黒っぽいグリーン、、、グリーン、青ですね。青というか、ほら、緑、緑、深緑ですね。

3 頭、ブルーがかって、輝いています。で、光っている感じでしょう、、これな、、、この色というのはもう書く時なかなか表現できない。

3 6 鴨の雄は首から上が緑色していて、、、

3 8 ビロードのような緑色しています。

1. The head is...let me see...’kuro’ (black), a ‘kuroppoi guriin’ (blackish ‘guriin’)... It’s ‘guriin’,... ‘ao’... can I call this ‘ao’...it’s ‘midori, midori’, dark ‘midori’, isn’t it.

3. The head is 'buruu'-ish, and shiny. See, it gives the feel that it's sort of shiny. This ...this colour, if you were to try to describe it in words you'd be battling, it'd be hard to describe.

36. The male duck's head is 'midori-iro' from the neck up...

38. It's like a velvety 'midori-iro'.

Table 6.41 Image No. 36

Description: ducks

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 1	M: 20	M: 1	M: 2	M: 0	M: 2
F: 0	F: 0	F: 1	F: 16	F: 4	F: 1	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens 1
20s	20s	20s	20s 15	20s	20s	20s	20s
30s	30s	30s	30s 8	30s	30s 1	30s	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s 1
50s	50s	50s 1	50s 3	50s 1	50s	50s	50s 1
60s	60s	60s	60s 1	60s	60s 1	60s	60s
70s	70s	70s 1	70s 3	70s 3	70s 1	70s	70s
Percentage	0%	Percentage	4.08%	Percentage	73.47%	Percentage	10.20%
Percentage	0%	Percentage	6.12%	Percentage	0%	Percentage	6.12%

* 'kujaku no iro' (peacock colour) (2), 'koyui kusa-iro' (dark grass colour) (1).

Ducks

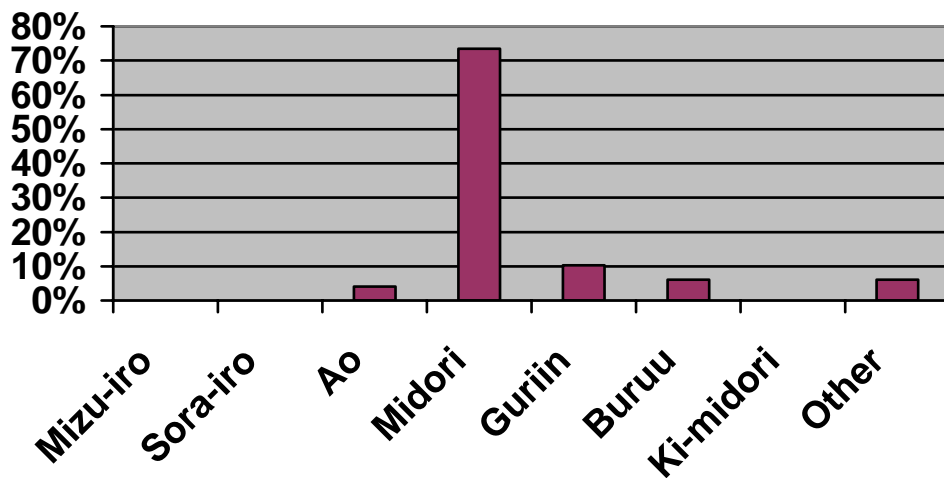


Image No. 36 (ducks)

Despite the name of the Mallard duck officially being ‘ao-kubi’ (‘ao’ head [literally ‘neck’]), there is no significant evidence to indicate that informants’ responses were influenced by collocational factors. It was apparent that the majority of interviewees were unfamiliar with the name ‘ao-kubi’, preferring to use the expression ‘magamo’ (wild duck) or simply ‘kamo’ (duck) when describing this image. Only 4.08% of responses (attributable to a female in her 50s and a male in his 70s) were ‘ao’. This result is in contrast to the tendency noted hitherto for certain contextualized images of green referents (e.g. Images 26 [green apple], 27 [frog], 27 [bamboo grass], 31 [cheese], 32 [lawn] and 33 [rice field]) to be described using ‘ao’ by JNS more generally, that is to say, across both genders and all age brackets.

For this referent, 73.47% of responses were ‘midori’, while 10.20% were ‘guriin’ and 6.12% were ‘buruu’. For both these loanword expressions the majority of responses were received from older informants, with none being received from those in their teens or 20s. Inasmuch as this image would never be considered ‘blue’, the response ‘buruu’ can be considered errant. Two of the three such errant responses were received from informants in their 60s and 70s.

The quotation provided by Informant 1 indicates that ‘guriin’, ‘ao’ and ‘midori’ were all considered as descriptors, while that provided by Informant 3 suggests ‘buruu gakatte’ (‘buruu’-ish) is an appropriate term. This informant (a male in his 60s) concludes that it would be ‘hard to describe’ this colour in words.

Two informants (a male in his 40s and a female in her teens) described this image as ‘kujaku no iro’ (peacock colour) while another, a male in his 40s, referred to it as ‘koyui kusa-iro’ (dark grass colour).

Image No. 37 (dress)

Pertinent quotations obtained from informants (by informant number):

1 3 幸せそうな風景で、お召しになっておられる服が青色のワンピースで、、、

家に木があって多分桜かなあ、、、で、すごい青が強くてきれいです。葉っぱは緑です。

30 きこ様が、青いの水玉のワンピースを着ていらしゃって、、、黄緑の葉っぱは青々と生えている、、、

42 きこ様はブルーと白の水玉模様で、、、。何の木だかわからないんだけどとてもグリーンがきれいに茂っていて、、、

38 横には木の枝が絵の中に入ってきていますけれども、葉っぱも非常に青々としています。

13. What a happy picture this is. The clothes she's wearing is an 'aoi' coloured dress with...and there's a tree in the garden, possibly a cherry blossom tree...which is vividly 'ao' and beautiful. The leaves are 'midori'.

30. The princess is wearing an 'aoi' dress with a polka dot pattern. And there are ki-iro' (yellow-coloured) leaves growing very 'aoao'...

42. The princess is sporting a 'buruu' and 'shiro' (white) polka-dot pattern ...I'm not sure what sort of tree it is but the 'guriin' is lushly growing....

38. At the side there is the branch of a tree coming into the picture, and the leaves are growing in a very nice 'aoao' way.

Table 6.42 Image No. 37

Description: dress

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 8	M: 1	M: 12	M: 0	M: 1	M: 4	M: 0	M: 0
F: 5	F: 1	F: 9	F: 0	F: 0	F: 7	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens 2	Teens	Teens 2	Teens	Teens	Teens	Teens	Teens
20s 8	20s	20s 8	20s	20s	20s 1	20s	20s
30s 1	30s	30s 7	30s	30s	30s 1	30s	30s
40s 1	40s	40s 1	40s	40s	40s 2	40s	40s
50s	50s 1	50s 2	50s	50s	50s 1	50s	50s
60s	60s	60s	60s	60s	60s 3	60s	60s
70s 1	70s 1	70s 1	70s	70s 1	70s 3	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
26.53%	4.08%	42.86%	0%	2.04%	22.45%	0%	2.04%

* 'guree' (grey) (1)

Dress

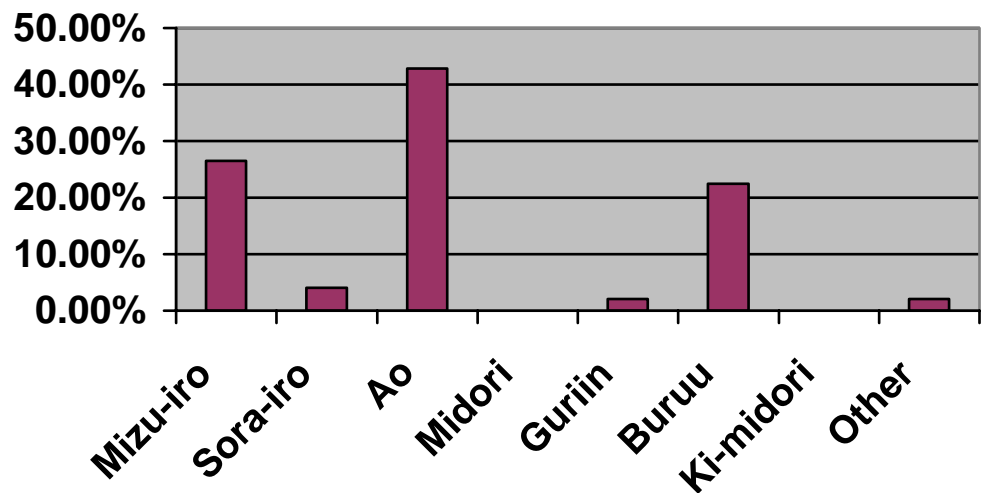


Image No. 37 (dress)

The three popular descriptors for this item were 'ao' (42.86%), 'mizu-iro' (26.53%) and 'buruu' (22.45%). While all three of these terms were attributable to informants representing both genders and a wide range of age brackets, a propensity is evident for the bulk of the native word responses to come from the younger informants (only three out of 21 instantiations of the term 'ao' were attributable to the 50+ age bracket, while for 'mizu-iro' the figures was one out of 13). For 'buruu' the situation is reversed, with seven of the 11 instantiations being received from those in the 50s or above. Two informants (1:50s, 1:70s) used the term 'sora-iro'. The errant use of 'guriin' was attributable to a male in his 70s.

The popularity of the term 'mizu-iro', as demonstrated here, adds weight to the suggestion made by Stanlaw (1987) that this term should, at least in terms of saliency, be considered for basic colour term status in Japanese.

Table 6.43 Image No. 37

Description: leaves

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 2	M: 18	M: 2	M: 0	M: 1	M: 2
F: 0	F: 0	F: 3	F: 14	F: 5	F: 0	F: 1	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 2	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 14	20s	20s	20s 1	20s
30s	30s	30s 1	30s 6	30s 2	30s	30s	30s
40s	40s	40s	40s 1	40s 1	40s	40s	40s
50s	50s	50s	50s 2	50s	50s	50s	50s 2
60s	60s	60s 1	60s 2	60s	60s	60s 1	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%
Percentage	0%	Percentage	10.42%	Percentage	66.67%	Percentage	14.58%

* includes 'kusa-iro' (grass colour) (1) and 'wakaba-iro' (young leaf colour) (1)

Leaves

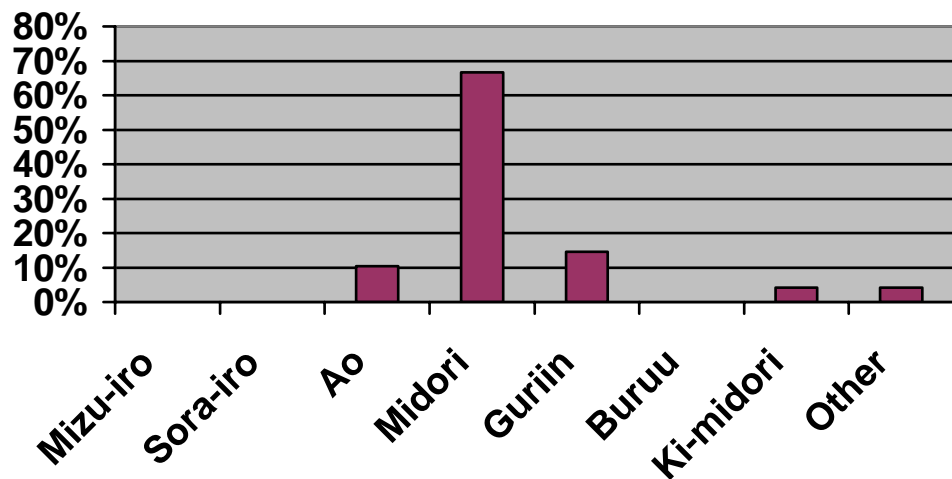


Image No. 37 (leaves)

The three popular descriptors for this item were ‘midori’ (66.67%), ‘guriin’ (14.58%) and ‘ao’ (10.42%). While all three of these terms were attributable to both genders and a wide range of age brackets, the use of ‘guriin’ was more evident amongst older informants, with four of the seven instantiations being received from those in the 70s. Two male informants in their 50s used the expressions ‘kusa-iro’ (grass colour) and ‘wakaba-iro’ (young leaf colour).

The quotations provided indicate that ‘ao’ is being used both as a denotational reference to colour which connotes a pleasing sense of beauty (Informant 13) and, when duplicated (‘aoao’), as an adverbial expression indicating a healthily growing tree (Informant 30). The quotation attributed to Informant 38 implies reference to a healthy colour which is indicative of healthy growth, while that received from Informant 42 would appear to be a reference to ‘greenery’ or ‘vegetation’ (a meaning associated with the term ‘midori’ identified in Chapter 3), as opposed to a colour descriptor.

Image No. 38 (mountain forest)

Pertinent quotations obtained from informants (by informant number):

30 青々と緑が生えている。

37 緑がとても生い茂っている

30. The ‘midori’ is growing in a very ‘aoao’ way.

37. The ‘midori’ is growing very healthily.

Table 6.44 Image No. 38

Description: mountain forest

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Bururu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 1	M: 20	M: 4	M: 1	M: 0	M: 0
F: 0	F: 0	F: 2	F: 16	F: 4	F: 0	F: 0	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 12	20s 2	20s	20s	20s
30s	30s	30s	30s 9	30s	30s	30s	30s
40s	40s	40s	40s 3	40s	40s	40s	40s
50s	50s	50s	50s 3	50s 1	50s	50s	50s
60s	60s	60s 1	60s 1	60s 1	60s 1	60s	60s
70s	70s	70s	70s 4	70s 4	70s	70s	70s 1
Percentage	0%	Percentage	6.12%	Percentage	73.47%	Percentage	16.32%
Percentage	0%	Percentage	2.04%	Percentage	0%	Percentage	2.04%

* ‘wakakusa-iro’ (young grass colour) (1)

Mountain Forest

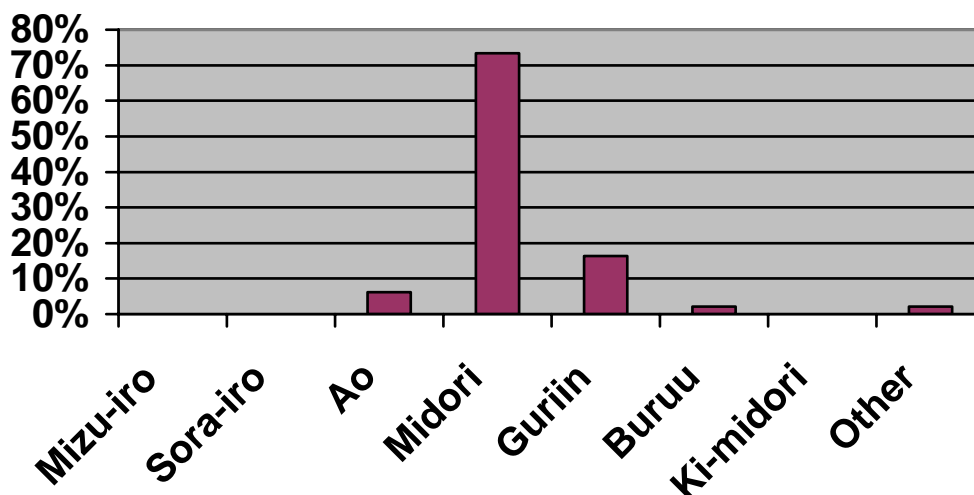


Image No. 38 (mountain forest)

The three popular descriptors for this image were the same, and shared the same ranking, as for Image 37 (leaves): ‘midori’ (73.47%), ‘guriin’ (16.32%) and ‘ao’ (6.12%). While all three of these terms were attributable to both genders and a wide range of age brackets, the use of ‘guriin’ was more evident amongst older informants, with six of the eight instantiations being attributable to those in their 50s or above. One informant, in his 70s, used the expression ‘wakakusa-iro’ (young grass colour) while another, in his 60s, used the errant descriptor ‘buruu’. A collaborator in this research suggested that ‘ao’ was appropriate because this term conveyed a sense of appeal, a *きれいな感じ* ‘kireina kanji’.

Given the fact that ‘Aomori’ (‘ao’ forest) is the name of one of the prefectures in Japan, it is perhaps surprising that the percentage of responses describing this forest scene as ‘ao’ is not considerably higher than the 6.12% recorded here. There is little evidence to suggest that the collocational relationship between the terms ‘ao’ and ‘mori’ represent a predisposing factor influencing JNS description of this image. The responses received suggest little or no influence by collocational factors.

Image No. 39 (moss)

Pertinent quotations obtained from informants (by informant number):

8 苔が青い苔ですね。でも「色」と聞かれたら「みどり」と答えますね

。

26 「これは」苔色、、、薄いグリーン。

8. The moss is an ‘aoi’ moss. But if I were pinned down and asked the colour specifically I would answer ‘midori’.

26. (This is). ‘koke-iro’ (moss-coloured)... a deep ‘guriin’.

Table 6.45 Image No. 39

Description: moss

Total no. of instantiations: 53

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 3	M: 15	M: 3	M: 0	M: 4	M: 3
F: 0	F: 0	F: 0	F: 10	F: 2	F: 0	F: 9	F: 4
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens 1	Teens 1
20s	20s	20s	20s 12	20s	20s	20s 3	20s 2
30s	30s	30s 1	30s 5	30s	30s	30s 5	30s
40s	40s	40s	40s 2	40s	40s	40s 1	40s
50s	50s	50s 1	50s 1	50s	50s	50s 2	50s 1
60s	60s	60s 1	60s	60s 1	60s	60s 1	60s 1
70s	70s	70s	70s 2	70s 4	70s	70s	70s 2
Percentage	0%	Percentage	5.66%	Percentage	47.17%	Percentage	9.43%
							0%
							Percentage
							24.53%
							Percentage
							13.21%

* includes 'wakakusa-iro' (young grass colour) (1), 'ao-midori' (1) and 'koke-iro' (moss colour) (1)

Moss

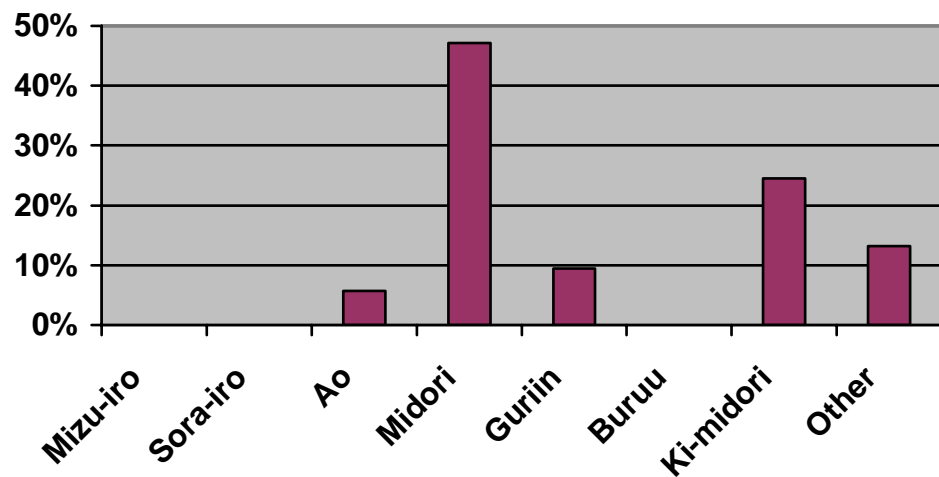


Image No. 39 (moss)

The two most commonly used descriptors for this image were ‘midori’ (47.17%) and ‘ki-midori’ (24.53%), with both of these terms being used by a wide range of ages and both genders. 13.21% of responses were classified as ‘other’ and these included ‘wakakusa-iro’ (young grass colour) (1:50s) and ‘koke-iro’ (moss colour) (1:70s). ‘Guriin’ (9.43%) was used exclusively by informants in their 60s and 70s, and 5.66% of responses were ‘ao’.

The quotation provided by Informant 8 indicates that collocational factors were instrumental in his choice of descriptor for this image. He states that the image is of ‘ao-goke’, but acknowledges that the colour, as such, is ‘midori’.

Image No. 40 (coral reef sea, top):

Pertinent quotations obtained from informants (by informant number):

10 上 : 青い

下 : グリーンがかった青っぽい、、、

22 上 : 青い、真っ青

下 : 青い色、緑色

27 上 : コバルトブルー

下 : エメラルドグリーン

40 上 : ブルー

下 : グリーン、緑

10. top: ‘aoi’. bottom: an ‘aoppoi’ colour tinged with ‘guriin’

22. top: ‘aoi, massao’ (bright ‘ao’). bottom: ‘aoi-iro, midori-iro’

27. top: ‘kobaruto buruu’ (cobalt blue). bottom: ‘emerarudo guriin’ (emerald green)

40. top: ‘buruu’. bottom: ‘guriin, midori’

Table 6.46 Image No. 40

Description: coral reef sea (top)

Total no. of instantiations: 44

Mizu-iro	Sora-iro	Ao		Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender		Gender	Gender	Gender	Gender	Gender
M: 3	M: 0	M: 17		M: 0	M: 1	M: 4	M: 0	M: 0
F: 3	F: 1	F: 12		F: 0	F: 0	F: 3	F: 0	F: 0
Age	Age	Age		Age	Age	Age	Age	Age
Teens 1	Teens	Teens 4		Teens	Teens	Teens	Teens	Teens
20s 3	20s	20s 10		20s	20s	20s 1	20s	20s
30s 1	30s	30s 7		30s	30s	30s 2	30s	30s
40s	40s	40s 1		40s	40s	40s 1	40s	40s
50s	50s	50s 3		50s	50s	50s 2	50s	50s
60s	60s	60s 1		60s	60s	60s 1	60s	60s
70s 1	70s 1	70s 3		70s	70s 1	70s	70s	70s
Percentage	13.64%	Percentage		65.91%	Percentage	0%	Percentage	2.27%
		Percentage		2.27%	Percentage	15.91%	Percentage	0%
		Percentage		0%	Percentage	0%	Percentage	0%

Coral Reef Sea (top)

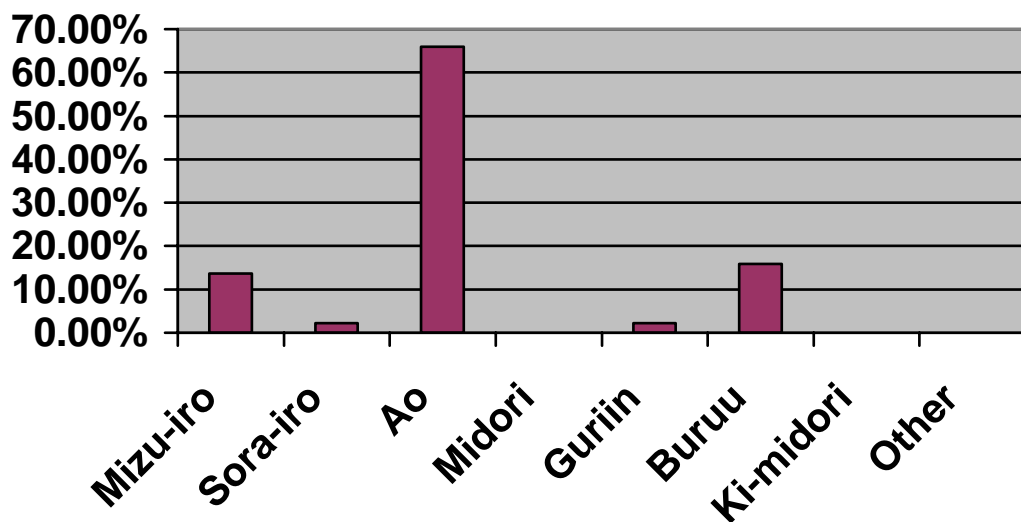


Image No. 40 (coral reef sea, top)

‘Ao’ (65.91%), ‘buruu’ (15.91%) and ‘mizu-iro’ (13.64%) were the most popular descriptors for this image, each representing a balance of gender and a spread over the age bracket categories. Responses classified as ‘buruu’ included ‘kobaruto buruu’ (cobalt blue) (three references), ‘mariin buruu’ (marine blue) (two references), ‘kusunda buruu’ (dull blue) and ‘usui buruu’ (light blue) (one reference each). Whereas six respondents described this image as ‘mizu-iro’, only one used the term ‘sora-iro’. An errant use of ‘guriin’ was attributed to a man in his 70s.

For this image responses from all informants indicated agreement that ‘midori’ was not a suitable descriptor.

The fact that four out of five informants described this image as either ‘ao’ or ‘buruu’ accords with the results of the word association exercise part of this research, which unequivocally identified the sea as being prototypically both ‘ao’ and ‘buruu’.

Image No. 40 (coral reef sea, bottom left):

Pertinent quotations obtained from informants (by informant number):

1 0 上 : 青い

下 : グリーンがかった青っぽい、、、

2 2 上 : 青い、真っ青 下 : 青い色、緑色

2 7 上 : コバルトブルー 下 : エメラルゴグリーン

4 0 上 : ブルー 下 : グリーン、緑

10. top: ‘aoi’. bottom: an ‘aoppoi’ colour tinged with ‘guriin’

22. top: ‘aoi, massao’ (bright ‘ao’). bottom: ‘aoi-iro, midori-iro’

27. top: ‘kobaruto buruu’ (cobalt blue). bottom: ‘emerarudo guriin’ (emerald green)

40. top: ‘buruu’. bottom: ‘guriin, midori’

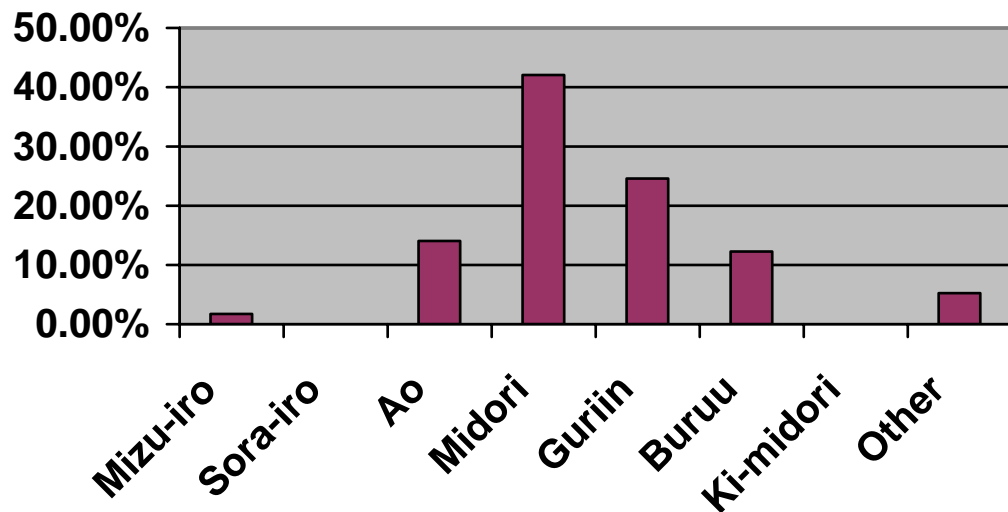
Table 6.47 Image No. 40

Description: coral reef sea (bottom left)

Total no. of instantiations: 58

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 4	M: 17	M: 4	M: 5	M: 0	M: 3
F: 1	F: 0	F: 4	F: 7	F: 10	F: 2	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens 2	Teens	Teens	Teens
20s	20s	20s	20s 9	20s 6	20s 1	20s	20s
30s	30s	30s 2	30s 6	30s 1	30s	30s	30s 1
40s	40s	40s 1	40s 1	40s 1	40s 1	40s	40s
50s	50s	50s 1	50s 1	50s	50s	50s	50s 2
60s	60s	60s 2	60s 1	60s 1	60s 1	60s	60s
70s 1	70s	70s 2	70s 2	70s 3	70s 4	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
1.75%	0%	14.04%	42.11%	24.56%	12.28%	0%	5.26%

Coral Reef Sea (bottom left)



Although the sea has been proven to be considered prototypically ‘ao’ by JNS in Part 1 of the research (the word association exercise), here evidence is provided which indicates that it can be described using ‘midori’ when compared with a very clearly blue part of the sea. A total of 42.11% of informants described the bottom left portion of this image as ‘midori’, with a further 24.56% of responses incorporating the descriptor ‘guriin’. Notwithstanding this, 14.04% of responses were ‘ao’ and 12.28% ‘buruu’.

Image No. 41 (the beefsteak plant, ‘shiso’)

Pertinent quotations obtained from informants (by informant number):

10 これは「青じそ」と言っています。「赤じそ」と「青じそ」があるけれど。しそは「青じそ」と言いますが、グリーンです。緑です。緑のしそ。

22 青いしそ。緑色のしそ。

37 これは青葉、しそです。「青葉」とも言います。

17 私は鹿児島から出た事はないから何もわかりません。これは「青じそ」。(色は)青です。緑。

10. This is called ‘ao-jiso’ (‘ao’ beefsteak plant leaf). There is ‘aka-jiso’ (red beefsteak plant leaf) and ‘ao-jiso’. The beefsteak plant leaf is called ‘ao-jiso’ but the colour is ‘guriin’. It is ‘midori’...a ‘midori beefsteak plant leaf’ (is being referred to).

22. These are ‘aoi’ beefsteak plant leaves, beefsteak plant leaves which are ‘midori’ in colour.

37. These are ‘ao-ba’ (‘ao’ leaves) of the beefsteak plant. They are referred to as being ‘ao-ba’.

17. I don’t know much as I’ve never left Kagoshima...This is ‘ao-jiso’ (the ‘ao’ leaf of the beefsteak plant). The colour is ‘ao’, it’s ‘midori’.

Table 6.48 Image No. 41

Description: beefsteak plant leaves ('shiso')

Total no. of instantiations: 61

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 6	M: 19	M: 2	M: 0	M: 0	M: 2
F: 0	F: 0	F: 13	F: 15	F: 4	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 2	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 5	20s 13	20s	20s	20s	20s
30s	30s	30s 2	30s 7	30s 1	30s	30s	30s
40s	40s	40s 2	40s 3	40s	40s	40s	40s
50s	50s	50s 4	50s 2	50s 1	50s	50s	50s 1
60s	60s	60s 1	60s 1	60s	60s	60s	60s 1
70s	70s	70s 3	70s 4	70s 4	70s	70s	70s
Percentage	0%	Percentage	31.15%	Percentage	55.74%	Percentage	9.84%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	3.28%

* includes 'midori-ao' (1) and 'wakaba-iro' (young leaf colour) (1)

Beefsteak Plant Leaves ('shiso')

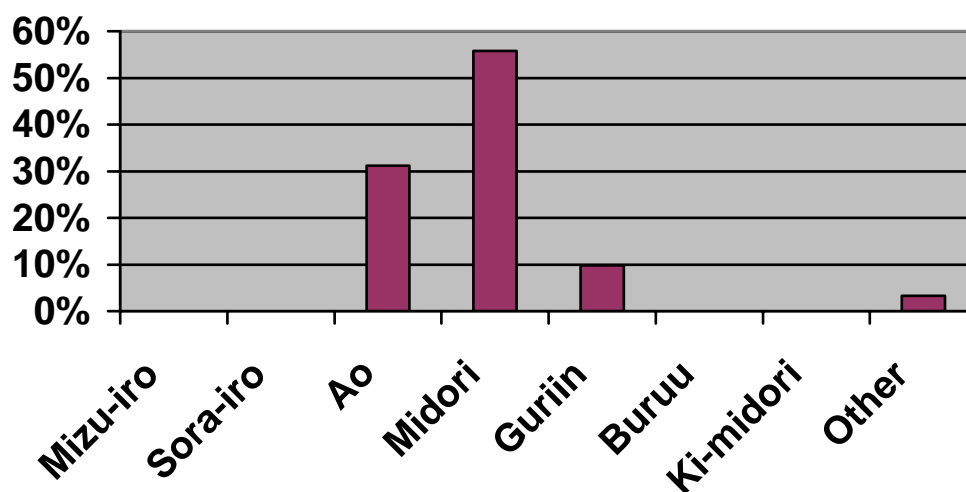


Image No. 41 (shiso)

‘Midori’, ‘ao’ and ‘guriin’ accounted for 55.74%, 31.15% and 9.84% of responses respectively. While for all of these categories both genders and a range of informant ages were represented, there was a strong tendency for ‘guriin’ to be the choice of descriptor of older informants (five of the six instantiations were from those in their 50s or above). One informant in his 50s suggested ‘wakaba-iro’ (young leaf colour), while another, in his 60s, seemed to ‘hedge his bets’ as it were, and used the descriptor ‘midori-ao’.

The quotations provided suggest evidence of a ‘binary’ situation in relation to the naming of this vegetable. Informant 10 reports that “There is “aka-jiso” and “ao-jiso””, the implication being that all shiso leaves can be categorized according to this binary. Acceptance of the latter collocation is evident in the response received from Informant 17, a woman in her 70s who, while claiming to be very knowledgeable due to her lack of travel experience, promptly identified this image as ‘ao-jiso’. She added that the colour was ‘ao’ but indicated an element of ambiguity by immediately qualifying this by stating ‘midori’. Further evidence of uncertainty as to appropriate descriptors was provided by Informant 22 who, while avoiding the collocation ‘ao-jiso’, firstly described the image as ‘aoi shiso’ then used the clumsy expression ‘midori-iro no shiso’. Informant 10 used the descriptor ‘guriin’ in addition to ‘ao’ and ‘midori’.

Image No. 42 (caterpillar)

Pertinent quotations obtained from informants (by informant number):

1 5 (これは) 「青虫」。見た事がある。(色は) 緑。

1 7 私達は「青虫」と言いますけれど。(色は) 青いですよ。

3 5 クロバーの花、一本の花のくきに青い青虫がくっついている絵です

。

4 2 虫が止まっています。青い、あのう、この毛虫が大きくなったらきれいな蝶々になると思いますよ。

15. This is an ‘ao-mushi’ (‘ao’ insect). I’ve seen one of these. The colour is ‘midori’

17. We call this an 'ao-mushi' ('ao' insect). The colour is 'ao' you see.

35. This is a picture of a clover flower with an 'aoi' 'ao-mushi' ('ao' insect) attaching itself to the stem.

42. There's an insect stopped here. It's 'aoi'. When this caterpillar grows up it will turn into a beautiful butterfly.

Table 6.49 Image No. 42

Description: caterpillar

Total no. of instantiations: 64

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu	Ki-midori		Other
Gender	Gender	Gender		Gender		Gender		Gender	Gender		Gender
M: 0	M: 0	M: 12		M: 18		M: 1		M: 0	M: 1		M: 1
F: 0	F: 0	F: 17		F: 12		F: 2		F: 0	F: 0		F: 0
Age	Age	Age		Age		Age		Age	Age		Age
Teens	Teens	Teens 2		Teens 3		Teens		Teens	Teens		Teens
20s	20s	20s	9	20s	11	20s	20s	20s	1	20s	20s
30s	30s	30s	4	30s	9	30s	30s	30s		30s	30s
40s	40s	40s	2	40s	3	40s	40s	40s		40s	40s
50s	50s	50s	4	50s	2	50s	1	50s		50s	1
60s	60s	60s	3	60s	1	60s		60s		60s	60s
70s	70s	70s	5	70s	1	70s	2	70s		70s	70s
Percentage	0%	Percentage		Percentage		Percentage		Percentage	Percentage		Percentage
		45.31%		46.88%		4.69%		0%	1.56%		1.56%

* 'happa-iro' (leaf colour) (1)

Caterpillar

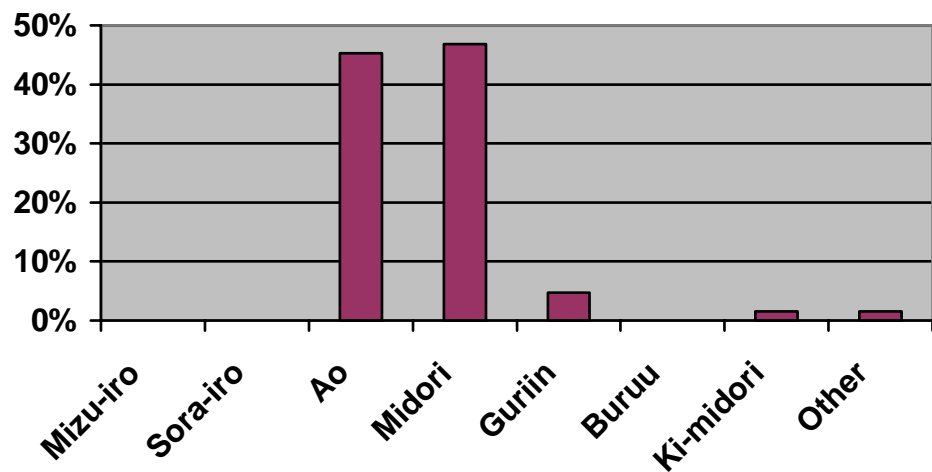


Image No. 42 (caterpillar)

There were thirty cases (46.88%) of this image being described with the word ‘midori’ and twenty nine (45.31%) of it being described as ‘ao’. The very similar high level of usage of these two terms indicates a broad based acceptance of them both as appropriate descriptors for this image. Responses incorporating these categories represented balanced spreads of gender and age. The third most popular response was ‘guriin’ (4.69%), with all instantiations being attributed to informants in their 50s or above. One informant (1:20s) suggested ‘ki-midori’ and another (1:50s) ‘happa-iro’ (leaf colour).

The quotations provided suggest that idiosyncratic use of the language could be a factor in descriptor choice. Informant 15 identifies this image as an ‘ao-mushi’ and goes on to describe the colour as ‘midori’. By way of contrast, Informant 17 states that this is an ‘ao-mushi’ and that the colour is ‘ao’. Similarly, Informant 35 identifies the image as an ‘ao-mushi’ and describes it as being ‘aoi’. ‘Aoi’ is also the adjective used by Informant 42.

Image No. 43 (bruise)

Pertinent quotation obtained from informants (by informant number):

1 「青痣」、、、、 「痣」 だけと表現してもいいけど、、、この緑がかった色でしょう、、、 そうすると 「青痣」というの。

2 1 青い痣がありますね。痣は青ですかね。

2 4 青く腫れています。

3 2 これは青タンですね。青タン。

3 6 青くなっている。

3 7 青くていたそう。

7 青くていたそう。

1. This is an 'ao-aza' (an 'ao' bruise).....we could call it just a bruise but it's got this 'midori'-tinged colour so we call it an 'ao-aza' (an 'ao' bruise).

21. There's an 'aoi' bruise here. Is the bruise 'ao' I wonder.....

24. This is swollen and is 'ao'.

32. This is an 'ao-tan' (an 'ao' bruise), an 'ao-tan' (an 'ao' bruise).

36. This has turned 'ao'.

37. It's 'ao' and painful looking.

Table 6.50 Image No. 43

Description: bruise

Total no. of instantiations: 58

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 16	M: 0	M: 0	M: 0	M: 0	M: 15
F: 0	F: 0	F: 10	F: 2	F: 0	F: 0	F: 0	F: 15
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 3	Teens	Teens	Teens	Teens	Teens 3
20s	20s	20s 10	20s	20s	20s	20s	20s 10
30s	30s	30s 3	30s	30s	30s	30s	30s 6
40s	40s	40s 1	40s	40s	40s	40s	40s 3
50s	50s	50s 5	50s 2	50s	50s	50s	50s 1
60s	60s	60s 2	60s	60s	60s	60s	60s 1
70s	70s	70s 2	70s	70s	70s	70s	70s 6
Percentage	0%	Percentage	44.83%	Percentage	3.45%	Percentage	0%
							Percentage
							0%
							Percentage
							51.72%

* includes ‘murasaki’ (purple) (4), ‘guree’ (grey) (3), ‘nezumi-iro, guree’ (mouse colour [=grey], grey [loanword]) (1), ‘hai-iro, guree’ (ash-colour [=grey], grey [loanword]) (1), ‘ao-midori’ (1), ‘midori and murasaki mix’ (midori and purple mix) (1)

Bruise

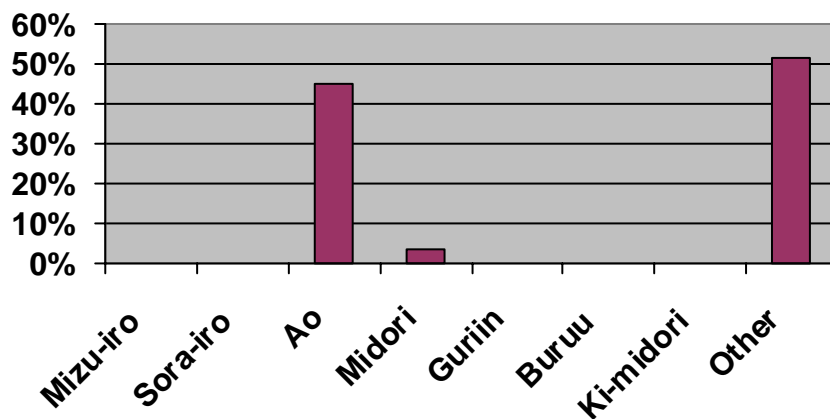


Image No. 43 (bruise)

Despite this image being acknowledged by many informants as an ‘ao-aza’ [standard Japanese] or an ‘ao-tan’ [dialect] (an ‘ao’ bruise), in a majority of cases (51.72%) descriptors belonging to the category ‘other’ were used. The informants offering these descriptors represented all age brackets and both genders. The most popular responses in this category were ‘murasaki’ (purple) and ‘guree’ (grey).

‘Ao’ responses represented 44.83% of the total number of descriptors used and two respondents (3.45%) used the descriptor ‘midori’.

Differing levels of conviction concerning the validity of ‘ao’ as a descriptor are evident in the quotations provided, with Informant 24 stating categorically that this is ‘ao’, and Informant 21, who initially described the image as ‘aoi’, going on to query whether ‘ao’ is in fact appropriate. Informant 1, on the other hand, suggests that ‘ao’ is the appropriate descriptor for this image because ‘it’s got this “midori”-tinged colour’.

Image No. 45 (grapes)

Pertinent quotations obtained from informants (by informant number):

1 1 グリーン、、、若草色

1 2 これは、ええとですね、「青ぶどう」と、もう一つは「赤」と言わないね、、、

1 3 あっ、、、ぶどうだ。青いぶどうと紫のぶどう。

11. It’s ‘guriin’... ‘wakakusa-iro’ (the colour of young grass).

12. Let me see, these are ‘ao-budo’ (‘ao’ grapes) and what would we call the other type... they’re not ‘aka’ (red) are they...

13. These are grapes. ‘Aoi’ grapes and ‘murasaki’ (purple) grapes.

Image No. 45

Table 6.51 Description: grapes

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M: 0	M: 0	M: 0		M: 10		M: 1		M: 0		M: 9		M: 5	
F: 0	F: 0	F: 5		F: 9		F: 3		F: 0		F: 3		F: 4	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens	Teens	Teens	1	Teens	2	Teens		Teens		Teens	2	Teens	
20s	20s	20s	2	20s	6	20s	1	20s		20s	6	20s	
30s	30s	30s		30s	5	30s		30s		30s	3	30s	
40s	40s	40s	1	40s	1	40s	1	40s		40s		40s	
50s	50s	50s		50s	2	50s		50s		50s	1	50s	4
60s	60s	60s	1	60s	1	60s		60s		60s		60s	2
70s	70s	70s		70s	2	70s	2	70s		70s		70s	3
Percentage	0%	Percentage	10.20%	Percentage	38.78%	Percentage	8.16%	Percentage	0%	Percentage	24.49%	Percentage	18.37%

* includes 'masukatto-iro' (muscat colour) (1), 'wakakusa-iro' (young grass colour) (1) and 'uguisu-iro' (nightingale colour) (1)

Grapes

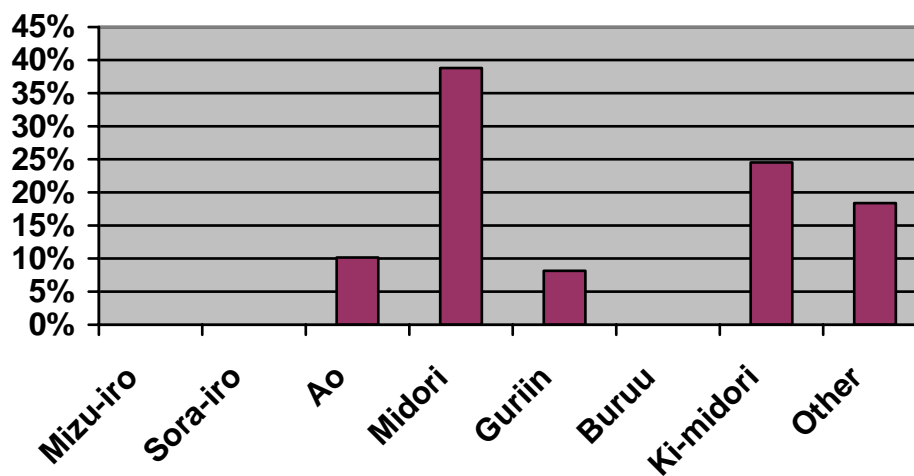


Image No. 45 (grapes)

The quotation from Informant 12 suggests no hesitation in adopting a binary approach to classifying grapes, with 'ao-budo' representing one of the binary categories. It would appear that the other category which naturally came to mind for this informant was 'aka-budo'. Informant 13 also suggests that 'ao-budo' should represent one of the binary categories.

The term 'midori' accounted for 38.78% of responses while the 'ki-midori' and 'other' categories attracted 24.49% and 18.37% of responses respectively. The fact that nearly one in four respondents described this image using the term 'ki-midori' indicates that a high level of salience is enjoyed by this colour term, and supports the argument posited by Stanlaw (1987, p.146) that this term should be considered a candidate for basic colour term candidacy in Japanese.

The response 'ao' represented 10.20% of all responses and was offered by informants in their teens, 20s, 40s and 60s. The next most popular descriptor was 'guriin' (8.16%), with two of the four instantiations deriving from informants in their 70s. It was also the more senior informants who suggested the terms 'masukatto-iro' (muscat colour), 'wakakusa-iro' (young grass colour) and 'uguisu-iro' (nightingale colour). All responses in the 'other' classification derived from informants in their 50s or above, suggesting that more senior informants generally exercise a wider range of vocabulary than do their younger compatriots.

Image No. 46 (tomatoes):

Pertinent quotations obtained from informants (by informant number):

3 8 これから色づいていくんでしょう。まだ青い、硬い状態のトマトが描いてあります。中には色づいて赤くなっているものもありますが、けれども真中のトマトはまだ白っぽいというか、緑色、薄い緑色をした状態で熟していませんね。

8 トマトですね。これは「赤いトマト」と「青いトマト」と言いますね。色をきかれましたら、緑でしょうね。青より緑に近いですね。

1 1 若草色の薄いもの、、、青ですね。

38. These will take on a colour from here on in. It's a picture of some hard tomatoes which are still 'aoi'. There are some which have changed colour and turned 'akai' (red) but the tomatoes in the middle are still 'shiroppoi' (whitish) if I can call them that...they are 'midori-iro', a deep 'midori-iro', as yet unripe.

8. These are tomatoes. We call these 'akai' (red) tomatoes and 'aoi' tomatoes. If I was pressed on the colour as such I would say 'midori' I guess. They are closer to 'midori' in colour than they are to 'ao'.

11. This is a pale 'wakakusa-iro' (young grass colour)...it's 'ao'.

Table 6.52 Image No. 46

Description: tomatoes

Total no. of instantiations: 61

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other		
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender		
M: 0	M: 0	M: 13	M: 17	M: 1	M: 0	M: 2	M: 3		
F: 0	F: 0	F: 10	F: 6	F: 3	F: 0	F: 5	F: 1		
Age	Age	Age	Age	Age	Age	Age	Age		
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens		
20s	20s	20s 5	20s 9	20s	20s	20s 4	20s		
30s	30s	30s 6	30s 5	30s	30s	30s 2	30s		
40s	40s	40s 2	40s	40s 1	40s	40s 1	40s		
50s	50s	50s 3	50s 3	50s	50s	50s	50s 2		
60s	60s	60s 3	60s	60s	60s	60s	60s		
70s	70s	70s 4	70s 2	70s 3	70s	70s	70s 2		
Percentage	0%	Percentage	37.70%	Percentage	6.56%	Percentage	11.48%	Percentage	6.56%

* includes 'wakakusa-iro' (young grass colour) (1)

Tomatoes

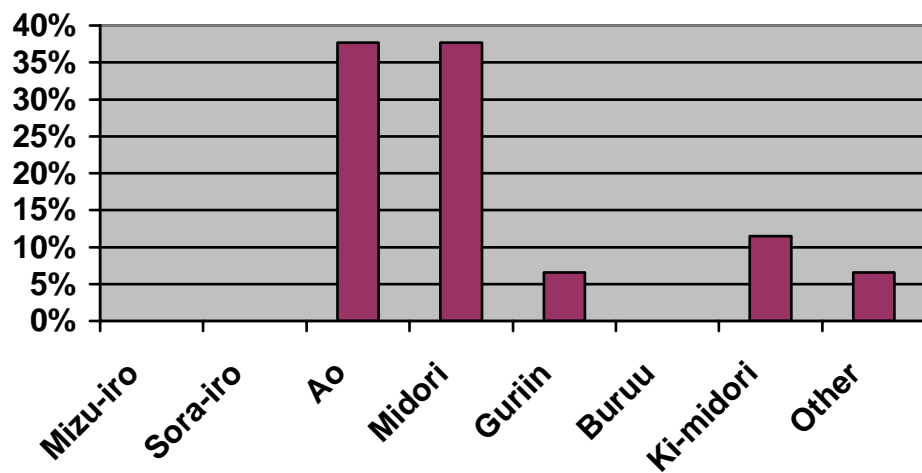


Image No. 46 (tomatoes)

The results for this image are unique in that an equal number of instantiations of ‘ao’ and ‘midori’ were recorded, each representing 37.70% of the total number of descriptors used. A wide range of age brackets and both genders were represented amongst informants who used these terms. This indicates a broad based acceptance of both these terms as appropriate descriptors for this image. The third most popular response was ‘ki-midori’ (11.48%) followed by ‘guriin’ and ‘other’ (6.56% each). Three of the four instantiations of ‘guriin’ were attributed to informants in their 70s while no informant in the 30s, 20s or teens used this loanword. One informant in his 50s suggested ‘wakakusa-iro’ (young grass colour), adding that this was ‘ao’.

The quotation provided by Informant 8 suggests that ‘ao’ and ‘aka’ (red) juxtapose as binary terms used when describing tomatoes (‘We call these “akai” [red] tomatoes and “aoi” tomatoes’). Informant 38 similarly indicates that there are two categories and that some of the tomatoes depicted are still ‘aoi’ while others have turned ‘aka’. This same informant, however, uses the expression ‘shiroppoi’ (whitish) to describe the tomatoes in the middle of the image.

Image No. 47 (T shirts LHS)

Pertinent quotation obtained from informants (by informant number):

1 1 左：若草色 右：空色

8 左：緑 右：青

7 左：黄緑 右：水色

11. left: ‘wakakusa-iro’ (young grass colour). right: ‘sora-iro’ (sky colour)

8. left: ‘midori’ right: ‘ao’

7. left: ‘ki-midori’ (yellow-green) right: ‘mizu-iro’ (water colour)

Table 6.53 Image No. 47

Description: T-shirts (left)

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M:14	M: 1	M: 0	M: 8	M: 3
F: 0	F: 0	F: 0	F: 6	F: 2	F: 0	F: 12	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 1	Teens	Teens	Teens 3	Teens
20s	20s	20s	20s 8	20s	20s	20s 7	20s
30s	30s	30s	30s 5	30s	30s	30s 4	30s
40s	40s	40s	40s 1	40s 1	40s	40s 1	40s
50s	50s	50s	50s 1	50s	50s	50s 2	50s 1
60s	60s	60s	60s 1	60s	60s	60s 2	60s
70s	70s	70s	70s 3	70s 2	70s	70s 1	70s 3
Percentage	0%	Percentage	0%	Percentage	42.55%	Percentage	0%
	Percentage		0%		Percentage		6.38%
			Percentage				0%
			Percentage				42.55%
			Percentage				8.52 %

* includes 'wakakusa-iro' (young grass colour) (2), 'kusa-iro' (grass colour) (1) and 'moegi-iro' (sprout colour) (1)

T-shirts (left)

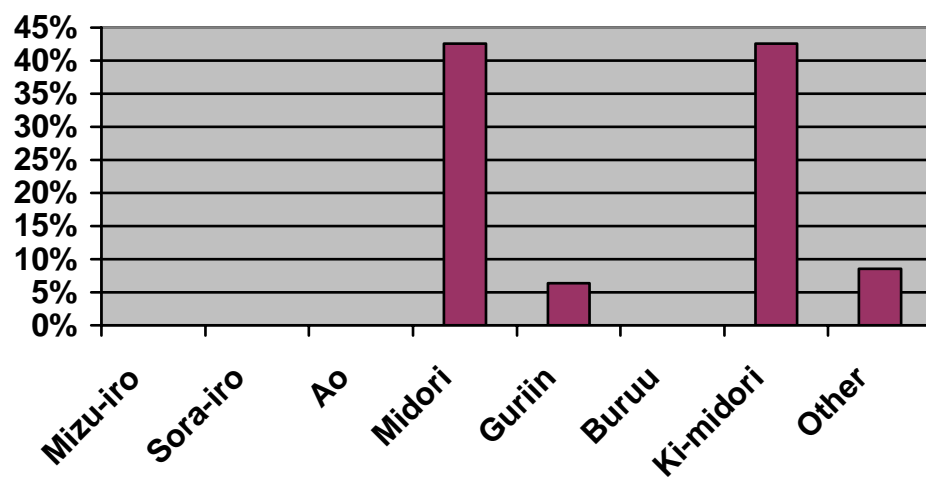


Image No. 47 (T shirts LHS)

The descriptors ‘midori’ and ‘ki-midori’ each accounted for 42.55% of responses and were attributable to informants who represented balanced spreads of gender and age. This result underscores the salience of ‘ki-midori’ as a colour term in the vocabulary of JNS. All descriptors in the ‘other’ category (‘wakakusa-iro’ [young grass colour], ‘kusa-iro’ [grass colour] and ‘moegi-iro’ [sprout colour]) were gleaned from informants in their 50s or above. 6.38% of informants used ‘guriin’ as a descriptor, a majority of whom were in their 70s. The fact that no informants used ‘ao’, ‘buruu’, ‘mizu-iro’ or ‘sora-iro’ strongly suggests that there was no blue-green confusion involved in describing this image.

Image No. 47 (T shirts RHS)

Pertinent quotations obtained from informants (by informant number):

1 1 左 : 若草色 右 : 空色

8 左 : 緑 右 : 青

7 左 : 黄緑 右 : 水色

11. left: ‘wakakusa-iro’ (young grass colour). right: ‘sora-iro’ (sky colour)

8. left: ‘midori’ right: ‘ao’

7. left: ‘ki-midori’ (yellow-green) right: ‘mizu-iro’ (water colour)

Table 6.54 Image No. 47

Description: T-shirts (right)

Total no. of instantiations: 45

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M: 11	M: 0	M: 9		M: 0		M: 0		M: 4		M: 0		M: 0	
F: 10	F: 1	F: 6		F: 0		F: 0		F: 4		F: 0		F: 0	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens 3	Teens	Teens 1		Teens		Teens		Teens		Teens		Teens	
20s 10	20s	20s 5		20s		20s		20s		20s		20s	
30s 3	30s	30s 5		30s		30s		30s 1		30s		30s	
40s 1	40s	40s		40s		40s		40s 2		40s		40s	
50s 2	50s	50s 2		50s		50s		50s		50s		50s	
60s 1	60s	60s 1		60s		60s		60s 1		60s		60s	
70s 1	70s 1	70s 1		70s		70s		70s 4		70s		70s	
Percentage	46.67%	Percentage	2.22%	Percentage	33.33%	Percentage	0%	Percentage	0%	Percentage	17.76%	Percentage	0%

T-shirts (right)

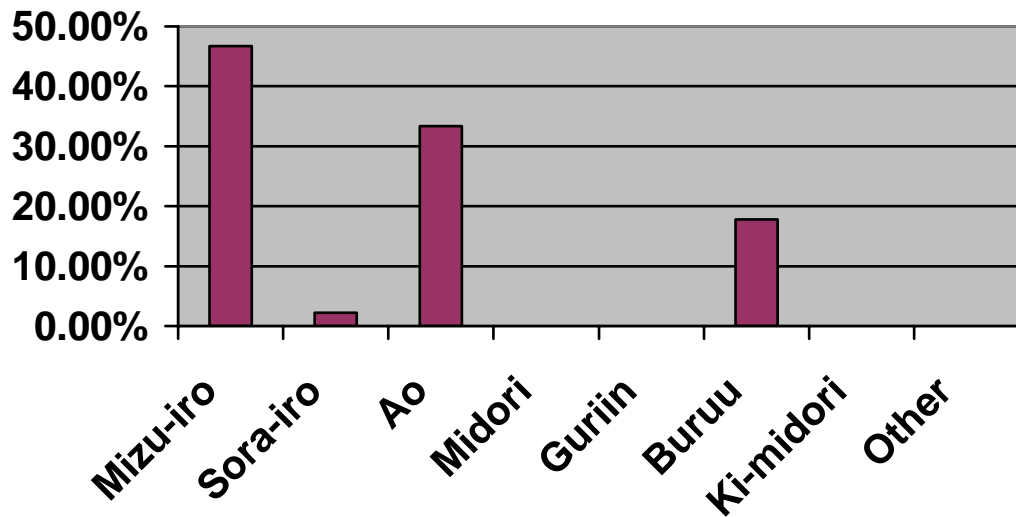


Image No. 47 (T shirts RHS)

The descriptor ‘mizu-iro’ accounted for 46.67% of responses. This result underscores the salience of ‘mizu-iro’ as a colour term in the vocabulary of JNS. ‘Ao’ accounted for 33.33% of responses. For both of these terms responses were attributable to informants who represented a balanced spread of gender and age. 17.76% of informants used ‘buruu’ as a descriptor, a majority of whom were in their 60s and 70s.

The fact that no informants used ‘guriin’ or ‘ki-midori’ strongly suggests that for this image, as for Image No. 47 (T shirts LHS), there was no blue-green confusion involved in descriptor choice.

Image No. 48 (python)

Pertinent quotations obtained from informants (by informant number):

1 1 マレーシアで見ましたよ。グリーンはこのマレーシアの、、、この青い、グリーンの蛇を神様にしています。

2 2 青い色。緑色した蛇が、、、曲がって、、、木にたかっています。

2 4 大きい蛇です。すごいきれいな青です。

3 0 この蛇は植物かのような黄緑と緑の青々しい色をしています。

9 すごいどぎつい緑色。

11. I’ve seen one of these in Malaysia, this sort of ‘guriin’ Malaysian...this ‘aoi’, ‘guriin’ snake is treated as a god.

22. It’s ‘aoi-iro’. A ‘midori’-coloured snake is ...coiling itself....and clinging onto the branch.

24. It’s a big snake. It’s a really beautiful ‘ao’.

30. This snake has an ‘aoao’ colour similar to the ‘ki-midori’ (yellow green) or ‘midori’ of plants.

9. What an amazingly strong ‘midori-iro’!

Table 6.55 Image No. 48

Description: python

Total no. of instantiations: 51

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 3	M: 16	M: 3	M: 0	M: 4	M: 2
F: 0	F: 0	F: 3	F: 11	F: 2	F: 0	F: 7	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	20s 10	20s	20s	20s 5	20s
30s	30s	30s 2	30s 5	30s	30s	30s 3	30s
40s	40s	40s 1	40s 1	40s	40s	40s 1	40s
50s	50s	50s 1	50s 3	50s	50s	50s 2	50s 1
60s	60s	60s	60s 1	60s 1	60s	60s	60s 1
70s	70s	70s 2	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage	11.76%	Percentage	52.94%	Percentage	9.80%
Percentage	0%	Percentage	21.57%	Percentage	0%	Percentage	3.92%

* 'midori-ao' (1) and 'kusa-iro' (grass colour) (1)

Python

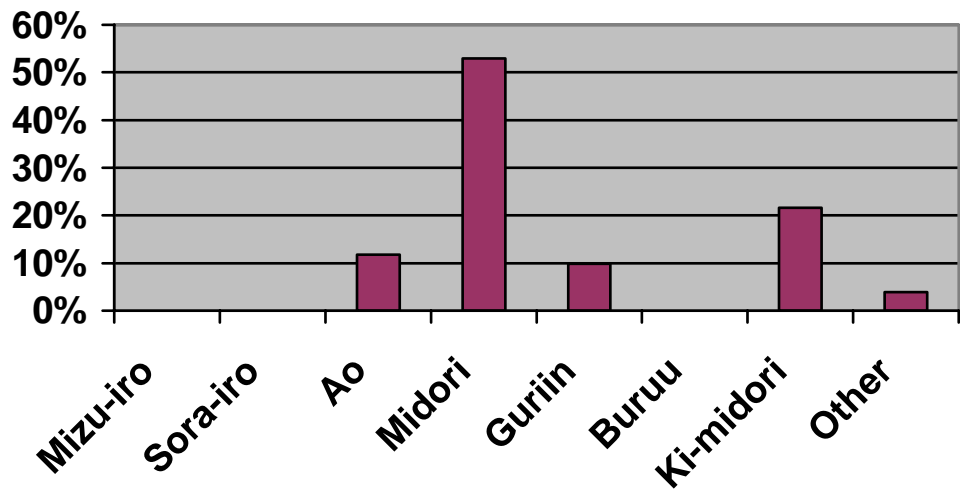


Image No. 48 (python)

The descriptors ‘midori’ and ‘ki-midori’ accounted for 52.94% and 21.57% of responses respectively and were attributable to informants who represented balanced spreads of gender and age. This result underscores the salience of ‘ki-midori’ as a colour term in the vocabulary of JNS. ‘Ao’ represented 11.76% of all responses and was chosen as a descriptor by males and females equally, again representing a spread of age groups. 9.80% of descriptor responses were ‘guriin’, all of which were provided by informants in their 60s and 70s.

Both descriptors in the ‘other’ category (including ‘kusa-iro’ [grass colour]) were gleaned from informants in their 50s or above.

The quotations reported indicate an intriguing interplay between the terms ‘ao’, ‘midori’ and ‘guriin’ in relation to this image. Informant 22 states that the image is ‘aoi-iro’ and then immediately describes the snake as being ‘midori’ in colour, while Informant 11 seems to use ‘aoi’ and ‘guriin’ interchangeably. By contrast, Informant 24 comments on how beautiful the ‘ao’ colour is while Informant 9 is taken by the strength of the ‘midori-iro’. It is of interest that Informant 24 refers to the ‘ao’ he is describing as ‘beautiful’, as collaborators in this research have suggested that a feature of the Japanese language is that it honours the tradition of allowing beautiful or appealing greens to be described using ‘ao’.

Image No. 49 (Ao-daisho snake)

Pertinent quotations obtained from informants (by informant number):

40 茶色ですね。緑ではないんですけど、「青大将」って言いますね。

13 枯れ木の色。

18 黄土色。

40. It’s ‘cha-ro’ (brown). Although it’s not ‘midori’ we call it the ‘ao-daisho’ (blue-green grass snake).

13. It’s the colour of a dead tree.

18. It’s ‘odo-iro’ (loess coloured, yellow ochre coloured)

Table 6.56 Image No. 49

Description: 'Ao-daisho' snake

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other		
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender		
M: 0	M: 0	M: 0	M: 0	M: 0	M: 0	M: 0	M: 27		
F: 0	F: 0	F: 0	F: 0	F: 0	F: 0	F: 0	F: 20		
Age	Age	Age	Age	Age	Age	Age	Age		
Teens	Teens	Teens	Teens	Teens	Teens	Teens	Teens 4		
20s	20s	20s	20s	20s	20s	20s	20s 15		
30s	30s	30s	30s	30s	30s	30s	30s 11		
40s	40s	40s	40s	40s	40s	40s	40s 3		
50s	50s	50s	50s	50s	50s	50s	50s 4		
60s	60s	60s	60s	60s	60s	60s	60s 3		
70s	70s	70s	70s	70s	70s	70s	70s 7		
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%	Percentage	100%

* includes 'cha-iro' (tea colour [brown]) (35), 'odo-iro' (loess [yellow earth] colour) (3), 'tsuchi-iro' (ground colour) (2), 'kasshoku' (brown) (1), 'kareki no iro' (dead tree colour) (1)

'Ao-daisho' Snake

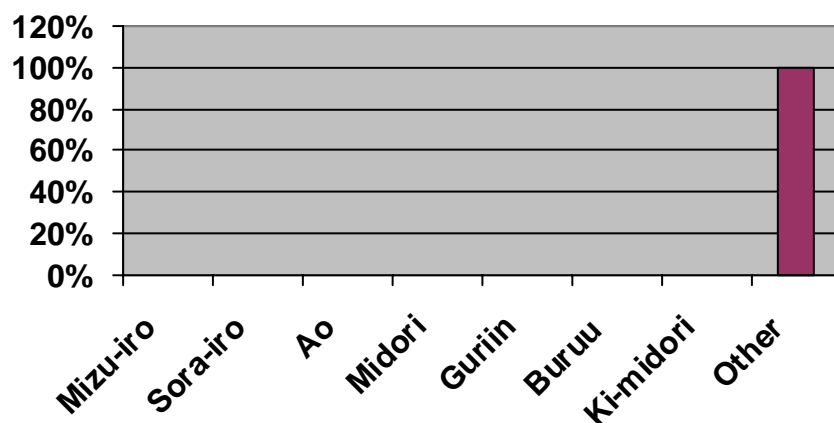


Image No. 49 (Ao-daisho snake)

The result for this image may not be as astounding as it first appears. All of interviewees spurned all the nominated colour categories, opting instead for the ‘other’ category. This was despite the well-known name of this snake incorporating the colour term ‘ao’. In other words, for this image there is no evidence of collocational factors influencing descriptor choice. On the contrary, the quotation given by Informant 40 provides evidence that, despite a knowledge of the name ‘ao-daisho’, the descriptor considered appropriate was ‘cha-iro’ (literally ‘tea coloured’ [brown]). This same quotation also indicates that JNS can feel it is natural to describe certain green things as ‘ao’ (‘although it’s not “midori” we call it the “ao-daisho”’).

The most popular descriptor was ‘cha-iro’ (literally ‘tea coloured’ [brown]), suggested by 21 males and 14 females (3:teens, 10:20s, 10:30s, 3:40s, 3:50s, 2:60s and 4:70s). Other descriptors also were used by both genders and a cross section of age groups. For example, three informants, all in their 20s, used the descriptor ‘odo-iro’ (loess [yellow earth] colour), two informants (1:30s, 1:70s) suggested ‘tsuchi-iro’ (ground colour), one (1:60s) suggested ‘kasshoku’ (brown) and another (1:teens) used the expression ‘kareki no iro’ (dead tree colour).

Image No. 50 (blood vessels)

Pertinent quotations obtained from informants (by informant number):

3 1 青筋

4 0 静脈流は「青く浮き出している」と言いますね。

2 青い血管

31. ‘ao-suji’ (‘ao’ veins)

40. We describe veins as being ‘ao’ and standing out.

2. They are ‘aoi’ blood vessels.

Table 6.57 Image No. 50

Description: blood vessels

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 6	M: 0	M: 1	M: 0	M: 0	M: 23
F: 0	F: 0	F: 6	F: 0	F: 0	F: 0	F: 0	F: 12
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens	Teens	Teens	Teens	Teens
20s	20s	20s	20s	20s	20s	20s	20s
30s	30s	30s	30s	30s	30s	30s	30s
40s	40s	40s	40s	40s	40s	40s	40s
50s	50s	50s	50s	50s	50s	50s	50s
60s	60s	60s	60s	60s	60s	60s	60s
70s	70s	70s	70s	70s	70s	70s	70s
Percentage	0%	Percentage	25.00%	Percentage	0%	Percentage	0%
				Percentage	2.08%	Percentage	0%
						Percentage	0%
							Percentage
							72.92%

* includes 'kuro' (black) (21), 'guree' (grey) (3) and 'azuki-iro' (adzuki bean colour) (1)

Blood Vessels

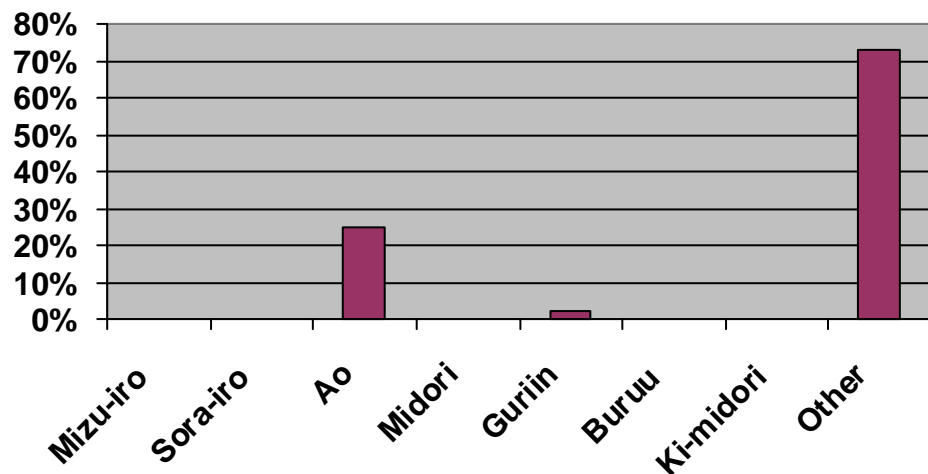


Image No. 50 (blood vessels)

A total of 72.92% of responses were categorized as ‘other’. Most of these were ‘kuro’ (black), but there were also responses, such as ‘guree’ (grey) (2:70s, 1:40s) and ‘azuki-iro’ (adzuki bean colour) (1:60s), which indicated a propensity for more senior informants to use both foreign loanwords and the traditional ‘-iro’ type expressions more than younger informants.

A quarter of the responses were ‘ao’. Equal numbers of male and female informants, representing all age brackets, used this term, strongly suggesting that ‘ao’ is accepted as an appropriate descriptor for blood vessels. The quotation from Informant 31 suggests that the collocation ‘ao-suji’ (‘ao’ blood vessels) came readily to mind when describing this image. One informant, in his 70s, suggested the descriptor should be ‘guriin’.

Image No. 51 (‘wakame’ edible seaweed)

Pertinent quotations obtained from informants (by informant number)

2 青いわかめ。草色。

6 若葉色、緑。

3 8 湯がいたわかめでしょうか。非常に鮮やかな青いと言いますか。緑色したわかめです。木の部分は比較的薄い、黄緑がかった薄い緑色で、葉の部分はすべて色も強い濃い緑色をしています。

1 3 モス・グリーン

3 2 わかめ色

2. It’s ‘aoi’ wakame (edible seaweed). It’s ‘kusa-iro’ (grass colour).

6. ‘Wakaba-iro’ (young leaf colour), ‘midori-iro’.

38. This looks like wakame seaweed which has been parboiled. We might call this a very brightly coloured ‘aoi’, might we not? It is ‘midori’ coloured wakame. The stalk parts are a relatively dark ‘midori-iro’ with a yellowy tinge to it and the leaf part is a dark ‘midori-iro’.

13. 'mosu guriin' (moss green).

Table 6.58 Image No. 51

Description: 'wakame' edible seaweed

Total no. of instantiations: 52

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other						
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender						
M: 0	M: 0	M: 2	M: 20	M: 1	M: 0	M: 2	M: 4						
F: 0	F: 0	F: 0	F: 15	F: 4	F: 0	F: 2	F: 2						
Age	Age	Age	Age	Age	Age	Age	Age						
Teens	Teens	Teens	Teens 2	Teens 1	Teens	Teens 1	Teens						
20s	20s	20s	20s 14	20s	20s	20s 2	20s 1						
30s	30s	30s 1	30s 8	30s 1	30s	30s	30s 2						
40s	40s	40s	40s 3	40s	40s	40s	40s						
50s	50s	50s 1	50s 3	50s	50s	50s	50s 1						
60s	60s	60s	60s 2	60s	60s	60s 1	60s						
70s	70s	70s	70s 3	70s 3	70s	70s	70s 2						
Percentage	0%	Percentage	3.85%	Percentage	67.31%	Percentage	9.62%	Percentage	0%	Percentage	7.69%	Percentage	11.54%

* includes 'wakaba-iro' (young leaf colour) (1), 'kusa-iro' (grass colour) (1), 'wakame-iro' (edible seaweed colour) (1) and 'kaiso-iro' (seaweed colour) (1)

'Wakame' Edible Seaweed

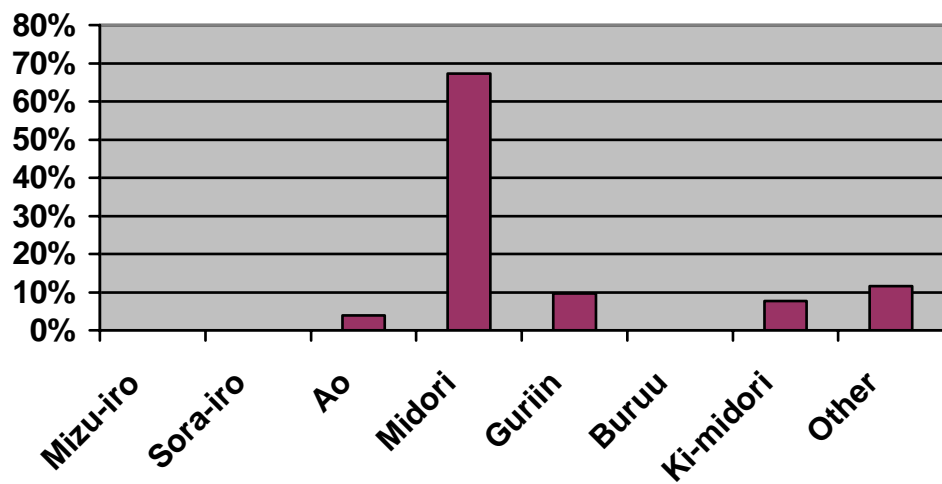


Image No. 51 ('wakame' edible seaweed)

A total of 67.31% of responses were ‘midori’. These were attributable to informants of both genders and all age brackets. 11.54% of responses were categorized as ‘other’. Many of these were of the traditional ‘-iro’ variety and, in the case of this image, they represented both genders and a spread of age brackets. 9.62% of responses were ‘guriin’ (including one case of ‘mosu guriin’ [moss green]), with three of the five instantiations being attributable to informants in their 70s. ‘Ki-midori’ accounted for 7.69% of responses, and ‘ao’ accounted for 3.85% (these were attributed to a man in his 30s and another in his 50s).

The quotation provided by Informant 2 suggests that ‘aoi’ is a word which came to mind readily when describing this image, although it is then promptly suggested that the colour is better thought of as ‘kusa-iro’ (grass colour). Similarly, Informant 38 suggests this image might be described as ‘a brightly coloured “aoi”’, a statement which is qualified by adding that it is ‘midori’ in colour.

Images Nos 52 and 53 (capsicums)

Pertinent quotation obtained from Informant 42:

4 2 グリーンなんだけど「青ピーマン」というのですよ。

42. Although it is ‘guriin’ we call this an ‘ao-piiman’ (‘ao’ capsicum).

Table 6.59 Images Nos 52 and 53

Description: capsicums (no variation noted between responses for Images nos 52 and 53)

Total no. of instantiations: 59

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 6	M: 21	M: 4	M: 0	M: 0	M: 0
F: 0	F: 0	F: 6	F: 17	F: 5	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	1	20s	15	20s	20s
30s	30s	30s	1	30s	8	30s	2
40s	40s	40s	2	40s	2	40s	1
50s	50s	50s	3	50s	3	50s	2
60s	60s	60s	1	60s	2	60s	
70s	70s	70s	4	70s	4	70s	4
Percentage	0%	Percentage	20.33%	Percentage	64.41%	Percentage	15.25%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%

Capsicums

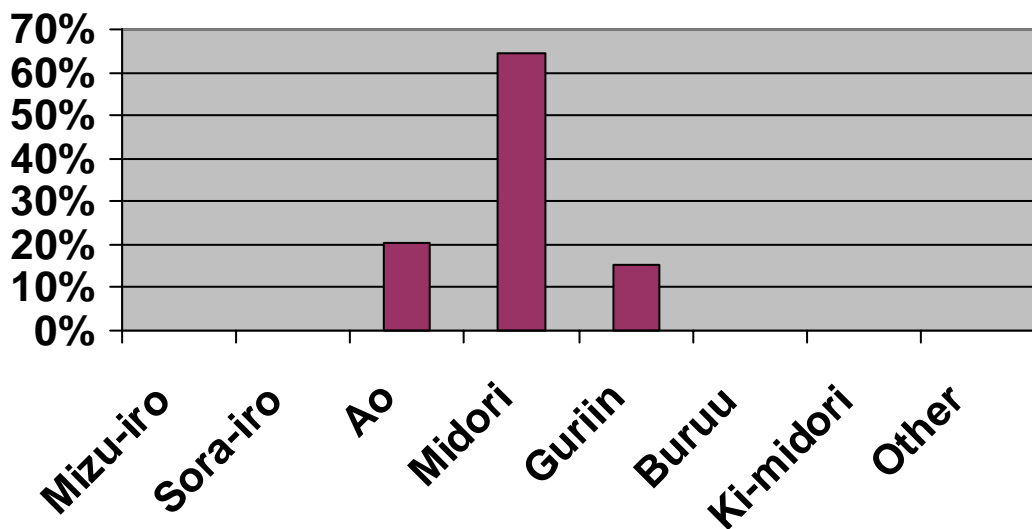


Image No. 52 (capsicums)

A total of 64.41% of responses were ‘midori’ and 20.33% were ‘ao’. Both these terms were used across gender and generational divisions in a balanced way. The only other descriptor used was ‘guriin’ (15.25%) and for this term 6 of the 9 instantiations derived from informants in their 50s and above (with four instantiations being attributed to informants in their 70s).

The quotation from Informant 42 indicates that the green capsicum is known by the name ‘ao-piiman’, suggesting that collocational factors might have been influential in guiding descriptor choice in certain cases. Furthermore, many informants drew my attention to the binary expressions ‘aka-piiman’ (red capsicums) and ‘ao-piiman’ (green capsicums), sometimes referring to the green capsicums alternately as ‘ao’ and ‘midori’.

Image No. 54 (toffee apples)

Pertinent quotation obtained from Informant 38:

38 三個のりんご飴がセロファンの包装に包まれて、スティックが突き刺さって、のっています。左側から青いりんご飴、真中が赤いりんご飴、もう一つ右側に緑色のりんご飴があります。

38. Three toffee apples are wrapped in cellophane and have sticks in them. From the left we have an ‘aoi’ toffee apple, in the middle we have an ‘akai’ (red) toffee apple and on the right again there is ‘midori’ coloured toffee apple.

Table 6.60 Image No. 54

Description: toffee apples

Total no. of instantiations: 52

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 4	M: 22	M: 1	M: 0	M: 0	M: 1
F: 0	F: 0	F: 4	F: 16	F: 4	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 15	20s	20s	20s	20s
30s	30s	30s 2	30s 8	30s 1	30s	30s	30s
40s	40s	40s 1	40s 2	40s 1	40s	40s	40s
50s	50s	50s 2	50s 4	50s	50s	50s	50s
60s	60s	60s 1	60s 2	60s	60s	60s	60s
70s	70s	70s	70s 3	70s 3	70s	70s	70s 1
Percentage	0%	Percentage	15.38%	Percentage	73.08%	Percentage	9.62%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	1.92%

Toffee Apples

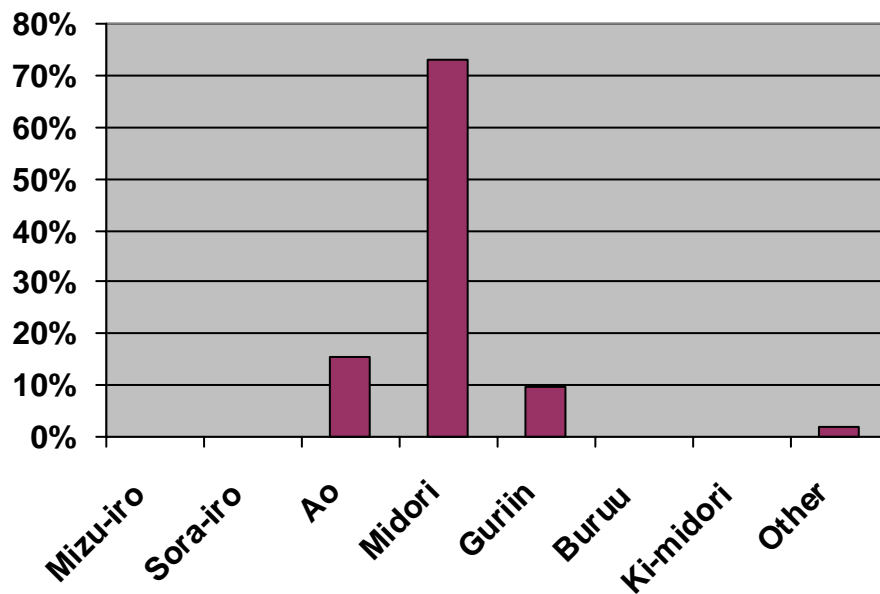


Image No. 54 (toffee apples)

The quotation from Informant 38 eloquently demonstrates the fluidity of colour term usage employed by JNS. Two toffee apples of the same green colour (and separated by a red one) are referred to as ‘aoi’ and ‘midori-iro’ respectively.

Nearly three-quarters of all responses received (73.08%) were ‘midori’ while 15.38% were ‘ao’. Responses for both of these descriptors represented both genders and a wide range of age brackets. 9.62% of responses were ‘guriin’, with most of these attributable to informants in their 70s. One man in his 70s responded that he was unable to describe these things as he had never seen them and was unfamiliar with them. In other words this informant presented as being unable to abstract the colour from the object when the object was not comprehended.

Image No. 55 (chilli peppers)

Pertinent quotations obtained from Informant 22:

22 informant: : とうがらし、「赤とうがらし」と「青とうがらし」、人間の手のひらにあって、上が赤とうがらしで、下が青とうがらしです。

researcher : どちらの方が辛いと思いますか。

informant : 緑だと思います。

researcher : こちらの色は？

informant : 赤色、(そして)緑色。タバスコに赤いのと青いのがあって、赤い方はまだ辛い。青いのは日本人は多分食べれないと聞いたことがあるけど、、、

22. informant: Chillies. There are ‘aka-togarashi’ (red chilli) and ‘ao-togarashi’ (green chilli) on someone’s hand. The top one is an ‘aka-togarashi’ (red chilli) and the bottom one is an ‘ao-togarashi’ (green chilli).

researcher: Which do you think is the hotter?

informant: “Midori’ I reckon.

researcher: What colour is this?

informant: 'aka-iro' (red coloured) and this (other) one is 'midori-iro'. You get the 'akai' (red) ones and the 'aoi' ones in Tabasco (sauce) and the 'akai' ones are not yet very hot. I've been told that the 'aoi' ones would be too hot for Japanese people to take.

Table 6.61 Image No. 55

Description: chilli peppers

Total no. of instantiations: 55

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 7	M: 19	M: 3	M: 0	M: 0	M: 0
F: 0	F: 0	F: 9	F: 13	F: 4	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 2	20s 14	20s	20s	20s	20s
30s	30s	30s 3	30s 6	30s 3	30s	30s	30s
40s	40s	40s 2	40s 2	40s 1	40s	40s	40s
50s	50s	50s 3	50s 2	50s	50s	50s	50s
60s	60s	60s 2	60s	60s 1	60s	60s	60s
70s	70s	70s 3	70s 4	70s 2	70s	70s	70s
Percentage	0%	Percentage	29.09%	Percentage	58.18%	Percentage	12.73%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%

Chilli Peppers

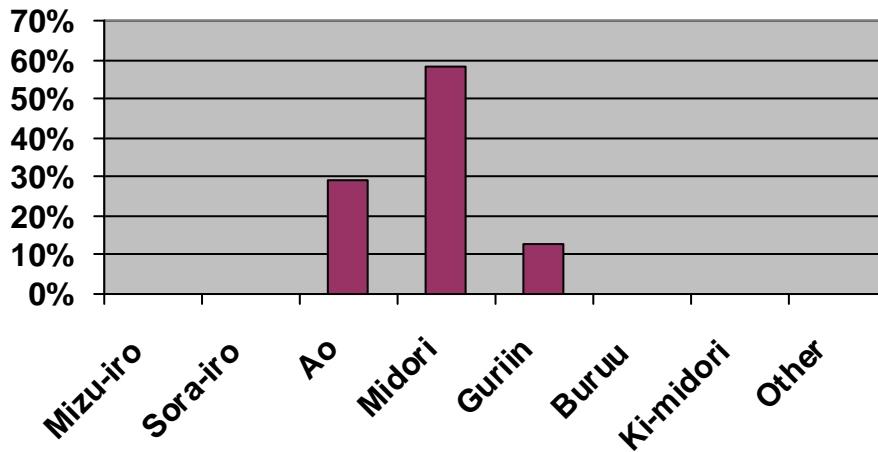


Image No. 55 (chilli peppers)

The quotation provided with this image is in the form of an extract from the interview between the researcher and Informant 22. It clearly indicates the existence of a binary situation where, for this informant, all chillies are linguistically classified as either ‘aka-togarashi’ (red chillies) or ‘ao-togarashi’ (green chillies). When asked which was hotter, the descriptor for the latter changed from ‘ao’ to ‘midori’ and this was also the term used when asked the colour as such. The term ‘aoi’ was soon reverted to, however, in subsequent discussions, strongly suggesting the likelihood of collocational considerations affecting descriptor choice. Only three colour categories were used by informants when describing this image: ‘midori’ (58.18%), ‘ao’ (29.09%) and ‘guriin’ (12.73%).

Image No. 57 (kiwi fruit)

Pertinent quotations obtained from informants (by informant number):

2 青いキュイ

2 1色は青い、あつ、緑で真中が白くて、その回りに種が、黒い種がた
くさんついてます。

2. (It's an) ‘aoi’ kiwi.

21. The colour is ‘aoi’, hang on, ‘midori’, and the middle part is white and around it you’ve got lots of black seeds.

Table6.62 Image No. 57

Description: kiwi fruit

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 2	M: 19	M: 2	M: 0	M: 2	M: 1
F: 0	F: 0	F: 0	F: 14	F: 4	F: 0	F: 3	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 4	20s 13	20s	20s 2	20s
30s	30s	30s	30s 5	30s 1	30s	30s 3	30s
40s	40s	40s	40s 3	40s 1	40s	40s	40s
50s	50s	50s 1	50s 3	50s	50s	50s	50s
60s	60s	60s	60s 2	60s	60s	60s	60s 1
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage 4.26%	Percentage 70.21%	Percentage 12.77%	Percentage 0%	Percentage 10.64%	Percentage 2.13%

Kiwi Fruit

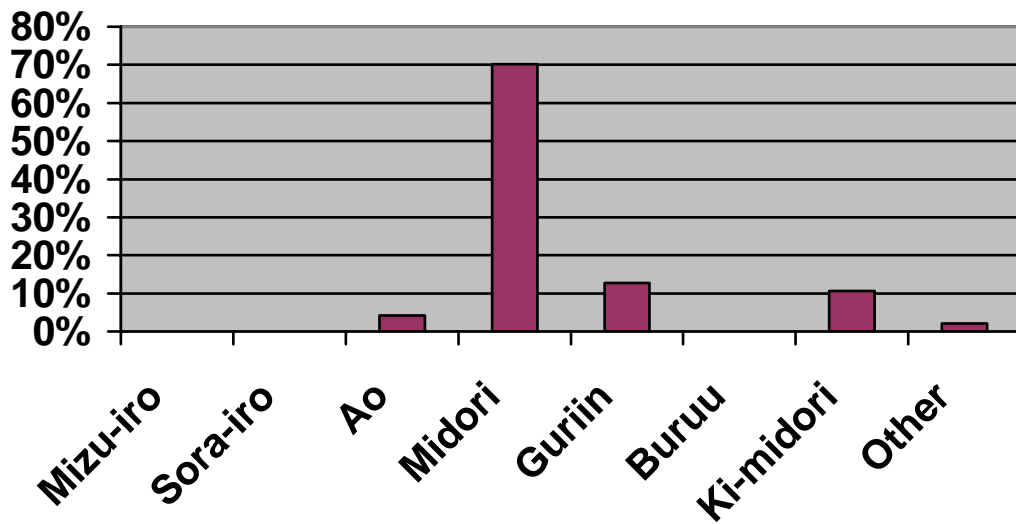


Image No. 57 (kiwi fruit)

A total of 70.21% of responses were ‘midori’. These were drawn from across all age brackets and both genders. 12.77% of responses were ‘guriin’, with most of these attributable to informants in their 70s. ‘Ki-midori’ was the third most popular descriptor choice (10.64%) while two informants (1:20s, 1:50s) suggested ‘ao’. One informant, a man in his 60s, described this fruit as ‘ki-iro’ (yellow).

The quotation provided by Informant 2 indicates that ‘aoi’ can be readily used as a descriptor for non-traditional foods, while that provided by Informant 21 suggests an element of hesitation in relation to using this term as a colour reference.

Image No. 58 (avocado)

Pertinent quotations obtained from informants (by informant number):

17 青色

19 実のところは黄色っぽくなっています。色は、、、外側、、、緑色で、、、

17. ‘ao-iro’.

19. The flesh part is ‘kiiroppo[i]. The colour is...the outside part is ... ‘midori-iro’...

Table 6.63 Image No. 58

Description: avocado

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M: 0	M: 0	M: 2		M: 17		M: 3		M: 0		M: 2		M: 2	
F: 0	F: 0	F: 2		F: 13		F: 2		F: 0		F: 3		F: 1	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens	Teens	Teens		Teens 3		Teens		Teens		Teens		Teens 1	
20s	20s	20s 1		20s 15		20s		20s		20s		20s	
30s	30s	30s		30s 5		30s 1		30s		30s 3		30s	
40s	40s	40s		40s 2		40s		40s		40s 1		40s	
50s	50s	50s 2		50s 1		50s		50s		50s		50s 1	
60s	60s	60s		60s 2		60s 1		60s		60s		60s	
70s	70s	70s 1		70s 2		70s 3		70s		70s 1		70s 1	
Percentage	0%	Percentage 8.52%		Percentage 63.83%		Percentage 10.64%		Percentage 0%		Percentage 10.64%		Percentage 6.38%	

* includes 'hada-iro' (skin colour) (1), 'odo-iro' (loess [yellow earth] colour) (1).

Avocado

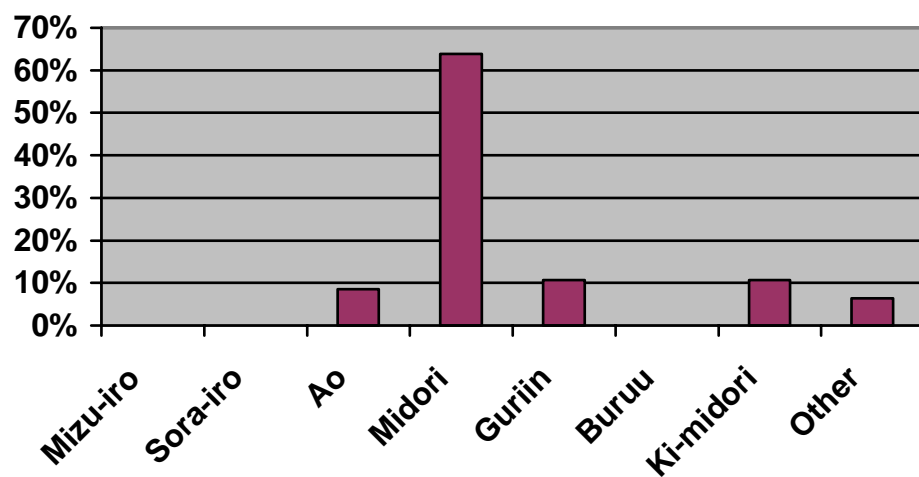


Image No. 58 (avocado)

The descriptors ‘midori’, ‘guriin’, ‘ki-midori’ and ‘ao’ accounted for 63.83%, 10.64%, 10.64% and 8.52% of responses respectively. Whilst all of these descriptors were drawn from both genders and a range of age brackets, there was a noticeable tendency for older informants to use the loanword term, with four of the five usages of ‘guriin’ deriving from informants in their 60s and 70s.

A total of 6.38% of responses were classified as ‘other’ and these included ‘hada-iro’ (skin colour), suggested by a woman in her 70s, and ‘odo-iro’ (loess [yellow earth] colour), suggested by a man in his 50s.

The quotations provided by Informants 17 and 19 appear to conflict with each other in terms of the appropriate colour descriptor for this image. Informant 17 states that it is ‘ao-iro’, while Informant 19 states that ‘the colour is... “midori-iro”’.

Image No. 59 (bananas)

Pertinent quotations obtained from informants (by informant number):

10 これはねえ、グレープフルーツと青バナナです。「青バナナ」と言いますね。これはブルー、青、、、緑バナナと言わないです。青バナナ。(色は)グリーンです。青です。

5 青バナナ。青々しくしているよ。

27 色は 青、濃い緑。

38 中央に全然熟れていない、硬い青いバナナが2本写っています。

41 これはまだ熟れていないバナナです。だから緑色ですね。緑色ですが、日本語では「青い」と言います。

28 真っ青。色はグリーンです。

10. What we’ve got here are grapefruits and some ‘ao-banana’ (‘ao’ bananas). We call these ‘ao-banana’ (‘ao’ bananas). They are ‘buruu’... ‘ao’... we don’t call them ‘midori’ bananas. They are ‘ao’ bananas. (The colour is) ‘guriin’, it’s ‘ao’.

5. These are 'ao-banana' ('ao' bananas). They are 'aoao'.

27. (The banana colour is) 'ao', a deep 'midori'.

38. In the centre (of the picture) there are two hard 'aoi-banana' ('ao' bananas) which are nowhere near being ripe

41. These are bananas which are not yet ripe. That's why they are 'midori-iro'. They are 'midori-iro' but they are referred to in Japanese as being 'aoi'.

28. They are 'massao' (bright 'ao'). The colour is 'guriin'.

Table 6.64 Image No. 59

Description: bananas

Total no. of instantiations: 60

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 13	M: 18	M: 1	M: 1	M: 0	M: 0
F: 0	F: 0	F: 11	F: 12	F: 4	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 1	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 15	20s	20s	20s	20s
30s	30s	30s 5	30s 6	30s 1	30s	30s	30s
40s	40s	40s 3	40s	40s 1	40s	40s	40s
50s	50s	50s 6	50s 1	50s 1	50s	50s	50s
60s	60s	60s 4	60s	60s	60s	60s	60s
70s	70s	70s 4	70s 4	70s 2	70s 1	70s	70s
Percentage	0%	Percentage	40.00%	Percentage	50.00%	Percentage	8.33%
	0%		1.66%		0%		0%

Bananas

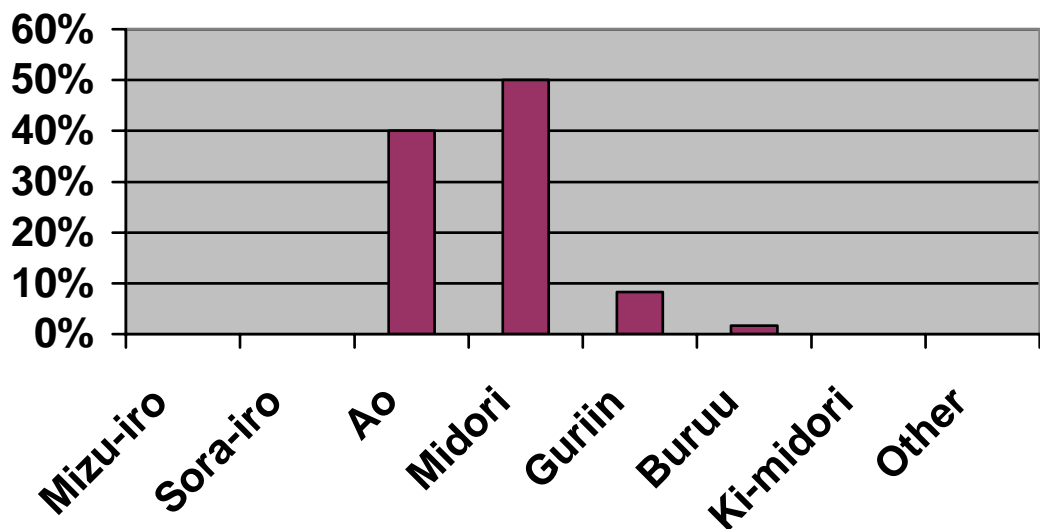


Image No. 59 (bananas)

The descriptors ‘midori’ and ‘ao’ accounted for 50.00% and 40.00% respectively of all responses received. Both these terms were used by informants representing a balance of genders and a spread of age brackets. JNS representing every age bracket used ‘ao’ as a descriptor for this image. 8.33% of responses were ‘guriin’, with a tendency for older informants to use this term. One informant, a man in his 70s, described the image as being ‘buruu’, clearly an errant usage of this term.

The six quotations provided indicate the complexity (inexactitude and apparent confusion) existing in relation to the use of colour nomenclature for this image. Informant 10 identifies a collocational usage of ‘ao’ but moves on to use the descriptors ‘buruu’, ‘midori’ and ‘guriin’ as well. The collocational expression ‘ao-banana’ is confirmed by the quotation provided by Informant 5. Informant 27 suggests that the colour ‘ao’ equates with a deep ‘midori’ while Informant 28 suggests that the bananas are ‘massao’ (bright ‘ao’) and that the colour is ‘guriin’. The implication that ‘aoi’ bananas are unripe and hard is made by Informant 38 while Informant 41 makes the point that unripe bananas are ‘mirodi-iro’, but referred to as being ‘aoi’ in Japanese.

Image No. 60 (green rope)

Pertinent quotations obtained from informants (by informant number):

2 6 左：グリーン 右：グリーン

1 5 左：緑 右：青

4 0 左：グリーン 右：ブルー

4 3 左：グリーン 右：青

4 4 左：緑 右：ブルー

26. left: ‘guriin’ right: ‘guriin’

15. left: ‘midori’ right: ‘ao’

40. left: ‘guriin’ right: ‘buruu’

43. left: ‘guriin’ right: ‘ao’

44. left: ‘midori’ right: ‘buruu’

Table 6.65 Image No. 60

Description: green rope (left)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M: 21	M: 4	M: 0	M: 0	M: 1
F: 0	F: 0	F: 0	F: 14	F: 4	F: 0	F: 2	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s	20s 13	20s	20s	20s 2	20s
30s	30s	30s	30s 8	30s 1	30s	30s	30s
40s	40s	40s	40s 3	40s	40s	40s	40s
50s	50s	50s	50s 3	50s	50s	50s	50s 1
60s	60s	60s	60s 1	60s 2	60s	60s	60s
70s	70s	70s	70s 3	70s 5	70s	70s	70s
Percentage	0%	Percentage	0%	Percentage	76.09%	Percentage	17.39%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	4.35%
Percentage		Percentage		Percentage		Percentage	2.17%

* 'kusa-iro' (grass colour) (1)

Green Rope (left)

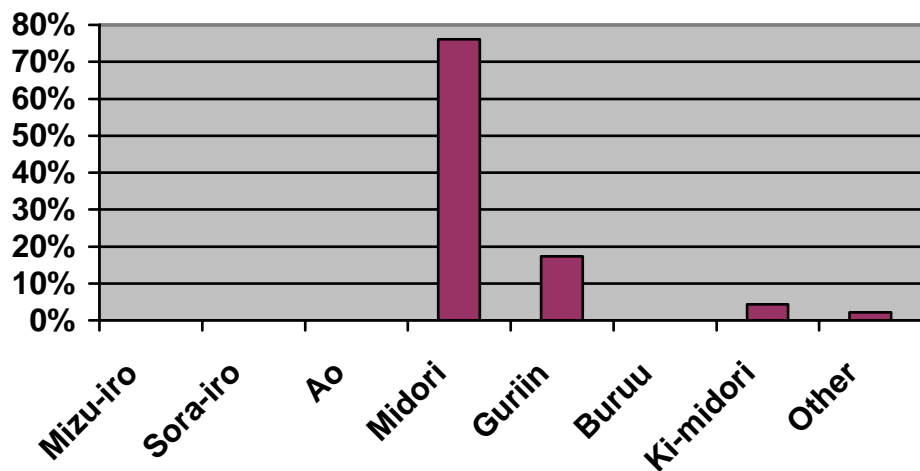


Image No. 60 (green rope)

A large majority of responses (76.09%) indicated that ‘midori’ was appropriate as a descriptor for this item. A total of 17.39% suggested ‘guriin’ (seven of the eight informants who did so being in their 60s or 70s) while 4.35% of responses were ‘ki-midori’. In addition one informant, in his 50s, used the descriptor ‘kusa-iro’ (grass colour).

None of the informants described the green rope as ‘ao’, ‘buruu’ ‘mizu-iro’ or ‘sora-iro’, strongly indicating there was no confusion or uncertainty in terms of blue and green determinacy.

Image No. 60 (blue rope)

Pertinent quotations obtained from informants (by informant number):

26 左：グリーン 右：グリーン

15 左：緑 右：青

40 左：グリーン 右：ブルー

43 左：グリーン 右：青

44 左：緑 右：ブルー

26. left: ‘guriin’ right: ‘guriin’

15. left: ‘midori’ right: ‘ao’

40. left: ‘guriin’ right: ‘buruu’

43. left: ‘guriin’ right: ‘ao’

44. left: ‘midori’ right: ‘buruu’

Table 6.66 Image No. 60

Description: blue rope (right)

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao		Midori	Guriin	Buruu	Ki-midori	Other	
Gender	Gender	Gender		Gender	Gender	Gender	Gender	Gender	
M: 2	M: 0	M: 21		M: 0	M: 1	M: 4	M: 0	M: 0	
F: 0	F: 0	F: 15		F: 0	F: 0	F: 5	F: 0	F: 0	
Age	Age	Age		Age	Age	Age	Age	Age	
Teens	Teens	Teens 4		Teens	Teens	Teens	Teens	Teens	
20s	20s	20s	15	20s	20s	20s	20s	20s	
30s	30s	30s	8	30s	30s	30s	1	30s	
40s	40s	40s	1	40s	40s	40s	2	40s	
50s	50s	50s	4	50s	50s	50s	50s	50s	
60s	60s	60s	1	60s	60s	60s	3	60s	
70s	70s	70s	3	70s	70s	1	70s	3	
Percentage	4.17%	Percentage	0%	Percentage	75.00%	Percentage	0%	Percentage	0%
		Percentage		Percentage	2.08%	Percentage	18.75%	Percentage	0%

Blue Rope (right)

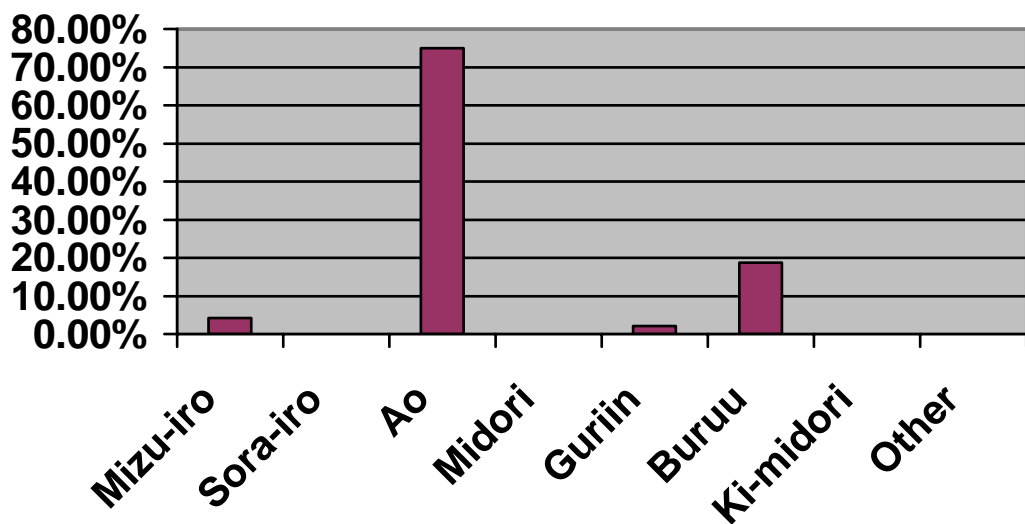


Image No. 60 (blue rope)

None of the informants described the blue rope as ‘midori’, although there was one usage of ‘guriin’ (attributed to a man in his 70s) recorded. Informant 26 referred to both coils of rope as ‘guriin’, the reference to the blue rope being considered errant as, while the loanword originated in English, this could never be thought of as ‘green’ in English.

The majority of responses (75.00%) indicated that ‘ao’ was appropriate as a descriptor, while 18.75% of responses were ‘buruu’. In addition 4.17% suggested ‘mizu-iro’.

It is evident from the quotations provided in relation to Image No. 60 that JNS can allow themselves considerable latitude when offering descriptions of certain things. The two coils of rope in this image are a case in point. The descriptors attributed to Informants 15, 40, 43 and 44 indicate that both the native words and foreign loanwords for green and blue are acceptable as descriptors and, furthermore, that all possible combinations of these terms are also acceptable. In other words, ‘midori’ can combine with ‘ao’ or ‘buruu’ and ‘guriin’ can do likewise. On the basis of this evidence it would seem that, under certain circumstances, JNS are remarkably catholic in their use of colour descriptors.

From Image No. 60 the conclusion can be drawn that there is little evidence suggesting there is JNS ‘confusion’ between blue and green when describing these coils of rope. The green rope is widely regarded as ‘midori’, ‘guriin’ or ‘ki-midori’ (the alternative being ‘kusa-iro’ [grass colour]) and the blue rope nearly universally as ‘ao’, ‘buruu’ or ‘mizu-iro’.

The tendency for loanwords to be associated with the speech of older informants is strongly evident in the descriptions received in relation to this image.

Image No. 61 (Australian traffic light)

Pertinent quotations obtained from informants (by informant number):

4 青の信号を示していて、、、上から赤、黄色、青。(色は)緑です。

19 上側が赤色、その下が黄色、更にその下が緑色です。

4. The 'ao' light is on...from the top we have 'aka' (red), 'ki-iro' (amber) and 'ao'. (The colour is) 'midori'.

19. The top one is 'aka-iro' (red-coloured), below that it is 'ki-iro' (amber) and below that again we have 'midori-iro'.

Table 6.67 Image No. 61

Description: traffic light (Australian)

Total no. of instantiations: 51

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other	
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender	
M: 0	M: 0	M: 13		M: 10		M: 1		M: 1		M: 0		M: 1	
F: 0	F: 1	F: 12		F: 10		F: 2		F: 0		F: 0		F: 0	
Age	Age	Age		Age		Age		Age		Age		Age	
Teens	Teens	Teens		Teens 3		Teens		Teens		Teens		Teens	
20s	20s	20s 9		20s 9		20s		20s		20s		20s	
30s	30s	30s 7		30s 2		30s 1		30s		30s		30s	
40s	40s	40s 1		40s 3		40s		40s		40s		40s	
50s	50s	50s 3		50s 1		50s		50s		50s		50s 1	
60s	60s	60s 2		60s 1		60s		60s		60s		60s	
70s	70s 1	70s 3		70s 1		70s 2		70s 1		70s		70s	
Percentage	0%	Percentage 1.96%		Percentage 49.02%		Percentage 39.99%		Percentage 5.88%		Percentage 1.96%		Percentage 0%	Percentage 1.96%

* 'ao-midori' (1)

Traffic Light (Australian)

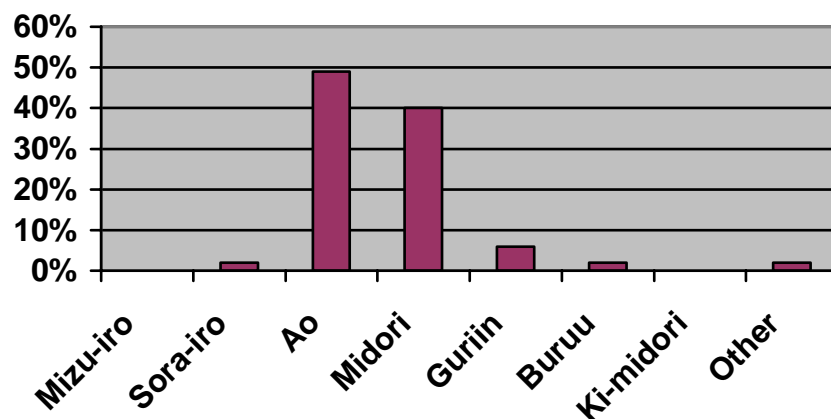


Image No. 61 (Australian traffic light)

An element of JNS confusion is evident in the quotations provided in relation to this image. Informant 4 firstly refers to the bottom light as ‘ao’, then immediately states that the colour is ‘midori’. Informant 19, on the other hand, doesn’t entertain the colour term ‘ao’ as a descriptor. Despite this, nearly half of the total number of responses received (49.02%) were ‘ao’, while 39.99% were ‘midori’. In addition 5.88% of responses were ‘guriin’ and 1.96% were ‘buruu’. One informant, in his 50s, used the descriptor ‘ao-midori’.

In contrast to the native terms ‘ao’ and ‘midori’, which were offered as descriptors by a balance of both genders and all age brackets, the influence of the loanword expressions ‘guriin’ and ‘buruu’ was particularly evident in the speech of senior JNS.

Image No. 62 (green melon in fruit salad)

Pertinent quotations obtained from informants (by informant number):

4 メロンが緑で、いちごが赤で、すいかも赤で、桃がオレンジで、パイナップルが黄色です。 とメロンも青、、、緑、メロンは緑。

17 researcher : メロンは何色、このメロンは？

informant : 青色ね。

24 メロンは青いメロンと黄色いメロン

41 researcher : どれがメロンですか。

informant : 青いのとこのオレンジ色のはメロン

42 メロン色

4. The melon is ‘midori’ and the strawberries ‘aka’ (red), the watermelon is also ‘aka’ (red), the peach is ‘orenji-iro’ (orange-coloured) and the pineapple ‘ki-iro’ (yellow). Also the melon is ‘ao’... ‘midori’the melon is ‘midori’.

17. researcher: What colour would you say the melon was, this melon?

informant: It’s ‘ao-iro’.

24. As for melon there is some 'aoi' melon and some 'ki-iroi' (yellow) melon.

41. researcher: Which are melon?

informant: This 'aoi' one and this 'orenji-iro' (orange coloured) one are melon.

42. (It's) 'meron-iro' (melon coloured).

Table 6.68 Image No. 62

Description: green melon in fruit salad

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender M: 0 F: 0	Gender M: 0 F: 0	Gender M: 4 F: 3	Gender M: 16 F: 13	Gender M: 2 F: 2	Gender M: 0 F: 0	Gender M: 2 F: 3	Gender M: 1 F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens 1	Teens
20s	20s	20s 2	20s 11	20s	20s	20s 3	20s
30s	30s	30s 1	30s 7	30s	30s	30s	30s
40s	40s	40s	40s 2	40s 1	40s	40s	40s
50s	50s	50s 2	50s 2	50s	50s	50s	50s
60s	60s	60s 1	60s 2	60s	60s	60s	60s 1
70s	70s	70s 1	70s 2	70s 3	70s	70s 1	70s 1
Percentage 0%	Percentage 0%	Percentage 14.89%	Percentage 61.70%	Percentage 8.52%	Percentage 0%	Percentage 10.64%	Percentage 4.26%

* includes 'meron-iro' (melon colour) (1)

Green Melon in Fruit Salad

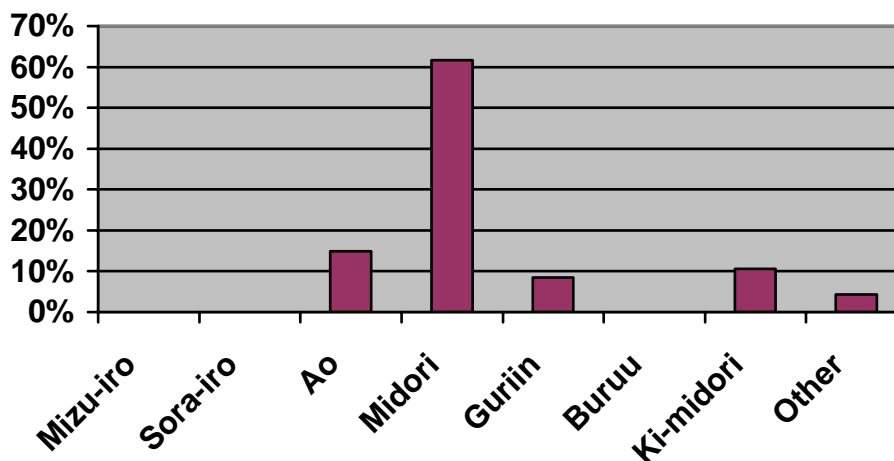


Image No. 62 (green melon in fruit salad)

‘Midori’ accounted for 61.70% of responses and ‘ao’ for 14.89%. Both these native terms were supported by informants representing both genders and a wide range of age brackets. ‘Ki-midori’ accounted for 10.64% of responses and ‘guriin’ for 8.52%, the latter term predominantly featuring in the descriptions offered by informants in their 70s. The responses of two informants (1:60s, 1:70s) were categorized as ‘other’.

The quotation provided by Informant 4 indicates an acceptance of both ‘ao’ and ‘midori’ as descriptors for this image. After a short deliberation, however, she concludes that ‘midori’ is the descriptor of her choice. ‘Aoi’ is the term used by Informants 24 and 41 in their free-flowing descriptions of this image and ‘ao-iro’ is the descriptor suggested by Informant 17 when asked the colour of the green melon. Informant 42, a lady in her 70s, makes an apparently non-contestable statement in describing the melon as ‘meron-iro’ (melon colour)!

Image No. 63 (strawberry calyx)

Pertinent quotations obtained from informants (by informant number):

2 4 へたは緑です。

3 4 もぎたてのへたですからまだ青々しくて、、、緑色。

24. The calyx is ‘midori’

34. The calyx, being newly-picked, is still ‘aoao’...it’s ‘midori-iro’.

Table 6.69 Image No. 63

Description: strawberry calyx

Total no. of instantiations: 48

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 3	M: 21	M: 2	M: 0	M: 0	M: 0
F: 0	F: 0	F: 1	F: 16	F: 5	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 4	Teens	Teens	Teens	Teens
20s	20s	20s 1	20s 15	20s	20s	20s	20s
30s	30s	30s 1	30s 7	30s 1	30s	30s	30s
40s	40s	40s 1	40s 2	40s 1	40s	40s	40s
50s	50s	50s 1	50s 3	50s 1	50s	50s	50s
60s	60s	60s	60s 3	60s	60s	60s	60s
70s	70s	70s	70s 3	70s 4	70s	70s	70s
Percentage	0%	Percentage	8.33%	Percentage	77.08%	Percentage	14.58%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	0%

Strawberry Calyx

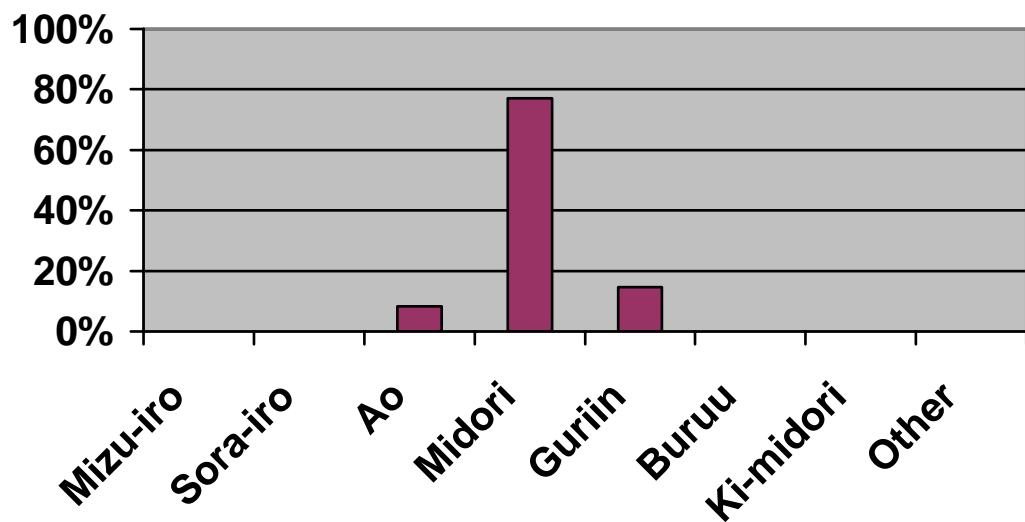


Image No. 63 (strawberry calyx)

Only 3 of the suggested colour categories are used by informants in their description of this image. 'Midori' accounted for 77.08% of all responses received, 'guriin' for 14.58% and 'ao' for 8.33%. In terms of gender and age, those using 'midori' represented a cross section of the cohort of informants while those using 'ao' ranged from those in their 20s to those in their 50s. The use of the loanword 'guriin' was dominated by informants in their 70s.

The quotation from Informant 24 indicates a straightforward and unequivocal position and that by Informant 34 indicates that the descriptor 'aoashii' connotes the idea of freshness.

Pt 2b(i): Conclusions

Other than for traffic lights, 'ao' is universally rejected as a descriptor for non-naturally occurring green referents.

The research indicates that there was no confusion whatsoever evident between blue and green when describing certain non-naturally occurring referents, e.g. flags (Images Nos 8 and 64). For Image No. 8 (French flag), for example, 0% of informants described the blue portion of the flag as either 'midori' or 'guriin', and for Image No. 64 (Italian flag) 0% of informants described the green portion of the flag as either 'ao' or 'buruu'. A similar situation was observed in relation to Image No. 47 (T shirts LHS and RHS). No informant described the blue T shirt using 'midori' or 'guriin', and 'ao' and 'buruu' were universally rejected as descriptors for the green T shirt. This situation was again mirrored in relation to Image No. 60 (coils of blue rope and green rope). The green rope was not considered to be 'ao' or 'buruu' by any informants, while the blue rope was errantly described as 'guriin' by just one informant (in his 70s) and described by no informants as 'midori'.

The clear cut usages of 'ao' and 'buruu' as the equivalents of blue and of 'midori' and 'guriin' as the equivalents of green were observed only in relation to images of things which are not naturally occurring - flags, T shirts and rope.

Older JNS (50+) employ a wider range of colour vocabulary than their younger counterparts:

As in Part 2a of the research, older JNS were shown to generally employ a wider range of vocabulary in relation to colour expressions than is the case for younger JNS.

This is true also in relation to the use of loanwords, which this research indicates are generally a feature of the speech of older informants. A clear propensity for a disproportionately high number of instantiations of the loanwords ‘buruu’ and ‘guriin’ to be attributable to older JNS is evident. For some images the loanword term is used exclusively by older informants. This is the case in relation to Image No. 39 (moss), for example, where the term ‘guriin’ is used exclusively by informants in their 60s and 70s.

With the exception of a limited number of ‘-iro’ terms (such as ‘ki-iro’ [yellow] and ‘cha-iro’ [brown], which are acknowledged by Berlin and Kay (1969) as being ‘basic colour terms’, and ‘mizu-iro’ [light blue], which is suggested by Stanlaw (1987) as a potential ‘basic colour term’), the traditional ‘-iro’ type expressions (typically ‘kusa-iro’ [grass colour] and ‘wakakusa-iro’ [young grass colour]) stand as a feature of the speech of older informants. Virtually all such ‘-iro’ type expressions recorded during the oral interviews were attributable to informants in their 50s or above.

The conclusion that loanwords and the traditional ‘...-iro’ expressions are predominantly features of the speech of older JNS accords with the findings delivered in Part 2a.

Errant usages of colour terms are closely associated with the speech of older JNS

This research suggests that errant usages of colour terms are generally attributable to the older JNS. Instances where referents which are clearly green are described as ‘buruu’, or clearly blue but described as ‘guriin’, are virtually non-existent amongst JNS in their 40s or below. Most errant usages of loanwords are attributable to informants in their 60s and 70s.

Gender is not a significant factor in terms of colour term descriptor choice.

Gender would appear not to be a factor in the JNS choice of colour term descriptors. For all the colour term categories provided for each image, a close to equal balance of male and female responses was recorded.

Salience of the terms ‘mizu-iro’ and ‘ki-midori’

The widespread use of ‘mizu-iro’ [light blue] and ‘ki-midori’ [yellow-green] noted in this research adds weight to the suggestion by Stanlaw (1987) that these terms are of a level of salience which should allow them to be considered ‘basic’ colour terms in Japanese. In relation to Image No. 39 (moss), for example, the term ‘ki-midori’ represents 24.53% of all responses received, while ‘mizu-iro’ represents 22.45% of all responses received in relation to Image No. 32 (sky). For Image No. 47 (T shirt LHS),

'ki-midori' represented 42.55% of all responses received as descriptors for this light green T shirt, while 46.67% of descriptors used for the light blue T shirt were 'mizu-iro'. Clearly 'mizu-iro' and 'ki-midori' are popular descriptors for light blue and light green respectively. For these items of apparel there are no complications witnessed in terms of 'ao' being used as a descriptor for green.

The use of native terms (including 'ao' as a descriptor for certain green referents) commands widespread support, this support being particularly noticeable amongst younger JNS.

The use of the native terms 'ao' and 'midori' is widely supported across age and gender variables. This includes the use of 'ao' as a descriptor for certain contextualized images which are green. Image No. 42 (caterpillar), for example, demonstrates not only how commonly used the native terms can be ('ao' and 'midori' accounting for 45.31% and 46.88% respectively of the total number of colour term descriptors used), but also how universally acceptable to informants (in terms of gender and age) they typically are. A similar situation exists in relation to Image No. 50 (blood vessels) where 25% of descriptor responses were 'ao', with these representing equal numbers of male and female informants and all age brackets. The evidence generally appears to support the assertion that the acceptance of the use of native terms is a phenomenon which extends across age and gender variables.

For certain referents the use of native terms was demonstrated to be more strongly supported by younger informants than by older informants (e.g. 'ao' for Image No. 10 [blue human eye] and 'midori' for Image No. 16 [new shoot]). For referents such as these a propensity was evident for the bulk of native term responses ('ao' and 'midori') to come from younger informants.

A high level of referent dependency is evident in terms of the suitability of 'ao' as a descriptor.

Whilst for the contextualized images presented in this part of the research the acceptance of 'ao' (and 'midori') appears to be independent of generational and gender considerations, the data clearly indicates that the perceived level of suitability of these terms is considerably referent dependent and that, furthermore, for certain referents (such as no. 31, cheese) vastly different choices of descriptors can be employed.

Table 6.70 lists the incidence of ‘ao’ as a descriptor, in decreasing order of the percentage of overall responses received, for each of the contextualized images used in this survey.

Table 6.70**'Ao' ranking as a percentage of overall descriptor responses for contextualized images**

Image No. and description	'Ao' as a percentage of overall responses	Image No. and description	'Ao' as a percentage of overall responses
8 French flag	90.90	54 toffee apples	15.38
34 uninhabited island (sky)	77.47	62 green melon	14.89
60 rope (RHS)	75.00	40 coral reef (bottom left)	14.04
34 uninhabited island (sea)	68.18	48 python	11.76
30 traffic signal	66.04	37 leaves	10.42
40 coral sea (top)	65.91	27 bamboo grass	10.42
11 blue eyes (cat)	59.57	45 grapes	10.20
33 rice field (mountains)	58.33	23 Buddha's face	9.80
32 lawn (sky)	55.10	58 avocado	8.52
33 rice field (sky)	52.17	63 strawberry calyx	8.33
10 blue eye (human)	51.06	38 forest	6.12
61 traffic light (Australian)	49.02	39 moss	5.66
45 caterpillar	45.31	57 kiwi fruit	4.26
43 bruise	44.83	36 ducks	4.08
26 green apple	43.94	13 green eyes (cat)	4.00
37 dress	42.86	51 'wakame' edible seaweed	3.85
59 banana	40.00	12 green eye (human)	2.17
46 tomato	37.70	21 kimono	2.13
47 T shirt (RHS)	33.33	18 peas	1.59
41 beefsteak plant leaves ('shiso')	31.84	47 T shirt (LHS)	0.00
44 Okinawan sea	26.32	49 'Ao-daisho' snake	0.00
32 rice field (rice)	22.00	60 rope (LHS)	0.00
27 frog	20.41	64 Italian flag	0.00
32 lawn (grass)	16.98		

Prototypicality of 'ao' as a descriptor of the sky and the sea

In relation to the question of both the sky and the sea being both prototypically 'ao' and 'buruu', the findings of this component of the research generally accord with the conclusions drawn as a result of the word association exercise. For Image No. 33 (sky), for example, 'ao' and 'buruu' together account for a total of 69.56% of all colour terms used, while for the sea Image No. 40 (top) the figure is 81.82%. A similar situation is witnessed in relation to Image No. 32 (sky), which is dealt with in Part 2b(ii) of this research, where 'ao' and 'buruu' together account for a total of 71.42% of all colour terms used. For Image No. 34 (sky) the total is 89.79% and for Image No. 34 (sea) it is 88.63%. It is not the case, however, that 'ao' and 'buruu' always represent the majority of descriptors used. In the case of Image No. 40 (bottom left), for example, where comparison is made with the colour of the sea at the top of the picture, the 'ao' and 'buruu' total was just 26.32% of overall responses, while for Image No. 44 it was 35.09%.

A referent can be described using a colour term although it doesn't generally awaken the cognitive schema associated with that colour term.

Evidence is provided in this, the oral interview section of the research, which seems to run contrary to certain conclusions arrived at as a result of Part 1 of the research (the word association test). As a result of the word association test it was concluded that the term 'midori' would not normally be employed as a descriptor for eyes. When shown eyes which were green and asked to provide a description, however, 'midori' was the most common descriptor choice (Images Nos. 12 and 13). Eyes, it would appear, can be described as 'midori' although they generally don't awaken the 'midori' cognitive schema.

Similarly, as a result of the word association test it was concluded that the term 'ao' would not normally be associated with mountains. However, 'ao' was clearly the most common descriptor choice for the mountains (which are blue in colour) depicted in Image No. 33. While 'eyes' generally do not awaken the 'midori' cognitive schema and 'mountains' do not generally form part of the 'ao' cognitive schema, it is evident that these descriptors can be used, depending on the picture stimuli, when describing these referents.

Collocational factors

Varying levels of the influence of collocational factors in descriptor choice are evident in this part of the research. Comments by informants suggest that collocational factors were greatly influential in relation to descriptor choice in the case of Image No.18 (peas) and considerably influential in relation to Images Nos. 10 (blue eye: human), 27 (frog), 31 (cheese), 32 (lawn), 33 (rice field), 33 (mountains), 35 (bamboo grove), 39 (moss), 41 (shiso), 42 (caterpillar), 43 (bruise), 45 (grapes), 50 (blood vessels), 52 (capsicums), 55 (chillies) and 59 (bananas).

The influence of linguistic collocation is similarly identifiable in relation to Images Nos. 26 (green apple), 30 (Japanese traffic signal) and 32 (sky), which are discussed in Part 2b(ii) of the research.

The evidence provided, however, suggests that collocational factors were thought to have brought little or no influence to bear on the JNS choice of descriptor for Images Nos. 36 (ducks), 37 (leaves), 38 (forest) or 49 ('Ao-daisho' snake).

The data strongly suggests that it is possible to have a low level of collocational influence regardless of whether the 'ao-...' expression is well known or otherwise. The Mallard duck, for example, is officially known as an 'ao-kubi' ('ao-neck/head') but this is a term that most informants claimed to be unaware of. The 'ao-daisho' snake, by contrast, is very well known by this name. Interestingly, while just 4.08% of responses suggested 'ao' was a suitable descriptor for the 'ao-kubi' duck, 0% used it as a descriptor for the 'ao-daisho'. Clearly a collocational relationship does not necessarily represent a predisposing factor influencing description.

Associative and attributive aspects of the 'ao' schema

A number of attributive aspects of 'ao' are referred to in the data presented in this section. Informants have suggested that the attribute of 'having many leaves' (Image No. 27) is an aspect of the 'ao' schema. In the case of Image No. 32 (lawn) the suggestion is that an 'aoi-shibafu' is typically one which is expansive and that 'aoi' grass leaves are healthy in appearance. This was also the case for Images Nos. 33 (rice field), 35 (bamboo) and 37 (leaves).

There is also evidence in the analyzed data provided which suggests an association between the concepts of being 'kirei' (attractive/appealing) and being 'ao'. Image No. 37 offers evidence that a 'pleasing sense of beauty' is connoted by the use of the term 'ao'. A similar comment is made in relation to Image No. 38 (forest), and the

same phenomenon is witnessed in relation to Image No. 48 (python) where both the strength and the beauty of the colour are commented on by informants. Image No. 32 (sky), which is dealt with in Part 2b(ii), offers further evidence of the phenomenon of associating ‘ao’ with the concept of being ‘kirei’

Linguistic binary categorization

The interviews indicate that for several of the images involved there is a linguistic binary categorization in place which suggests that things are ‘ao’ if not ‘aka’ and vice versa. Responses received in relation to Image No. 41, for example, suggest that ‘shiso’ (which undergoes a phonetic modification [a voicing of the initial syllable] when preceded by a colour descriptor) can either be ‘aka-jiso’ or ‘ao-jiso’. In the case of Image No. 45 (grapes) the binary involved the expressions ‘aka-budo’ and ‘ao-budo’, while for tomatoes the terms were ‘akai tomato’ and ‘aoi tomato’. Similar situations are evident in relation to Images Nos. 52 (capsicums) (‘aka-piiman’ and ‘ao-piiman’) and 55 (chillies) (‘aka-togarashi’ and ‘ao-togarashi’).

Flexibility of language use

A certain catholic attitude is evident in the responses received as descriptors for certain images. In relation to Image No. 42 (caterpillar), for example, we witness two informants identifying the insect as an ‘ao-mushi’, with one going on to describe the colour as ‘ao’ and the other going on to describe it as ‘midori’.

In addition, an element of idiosyncratic language use or ‘fluidity of colour term usage’ has been observed in relation to certain images. Image No. 54 (toffee apples) provides a good example of this, with the green toffee apple on the left and the green toffee apple on the right being described by the same informant as ‘aoi’ and ‘midori-iro’ respectively.

Native terms and loanword terms can be mixed together.

The data suggest that JNS feel no resistance to using both native colour terms and loanword colour terms in combination when describing images. The loanword ‘orenji’ (orange) for example, is observed to combine variously with both ‘guriin’ and ‘midori’ in descriptions of the kimono (Image No. 21).

Similarly, in relation to Image No. 60 (green rope and blue rope), evidence is presented which indicates JNS sometimes allow themselves considerable latitude in the way they pair up colour term descriptors, with informants demonstrating no qualms in combining native terms and loanword terms in all possible combinations.

Such descriptor ‘fluidity’ was also noticed and commented on by Stanlaw (1987) in connection with his research into the question of colour nomenclature, and specifically the role of English loanwords, in modern Japanese.

Indecision, uncertainty and wavering levels of conviction (‘can’t decide’, ‘not sure’, ‘don’t know’)

While all instances of informants stating they were not able to describe a given image were attributable to older JNS, mostly in their 70s, a more general element of confusion and uncertainty was noticeable amongst informants in relation to the question of what constituted an appropriate descriptor for the green traffic lights (Images Nos. 30 and 61). These images were the only ones of non-naturally occurring things for which a clear cut usage of colour term descriptors was not evident.

The data, furthermore, provide clear evidence which suggests that an informant can display wavering levels of conviction concerning the appropriateness of ‘ao’ as a descriptor for a given referent. In the case of Image No. 43 (bruise), for example, we witness ‘ao’ being initially suggested as a descriptor, only to find this initial judgment being subsequently queried by the informant who used it. The same situation is witnessed elsewhere also, for example in relation to Image No. 51 (‘wakame’ edible seaweed) and Image No. 57 (kiwi fruit).

‘Ao’ has a wide level of application, including use as a descriptor for non-traditional items which are green.

The data clearly provides evidence which indicates that ‘ao’ has a wide level of application, being used by someone for every contextualized image except Images Nos 47 (T shirt, LHS), 49 (the ‘Ao-daisho’ snake), 60 (rope, LHS) and 64 (Italian flag). With the exception of Image No. 49 (which must be considered exceptional as, despite its name, it is neither green nor blue) all these images are of non-living things.

The data also provide evidence which indicates that the use of ‘ao’ as a descriptor for green things is not restricted to items which could be considered of traditional significance to the Japanese in a cultural sense. Image No. 57 (kiwi fruit), for example, depicts an item which has been introduced to Japan only in relatively recent times. Yet, despite the ‘foreignness’ of this fruit, it is apparent that it can be embraced by ‘ao’ cognitive schema. Similarly, for Images Nos 32 (lawn) and 33 (rice field) ‘ao’ is deemed applicable to both the grass of the Western-style lawn and the grass of the padi field (16.98% and 22.00% of responses respectively).

Pt 2b (ii). Is the usage of ‘ao’ contextually dependent?

Reference has already been made to the question of the choice of colour descriptor being contextually dependent in relation to Image No. 23 (Case 3 of the ‘in-between’ colours) where the expression 青銅色, (‘seidoushoku’ [or ‘seidou-iro’]) was recorded exclusively in relation to the colour presented in context, as part of a picture. In order to further investigate the question of contextual dependency, or the effect of context on the choice of ‘ao’ as a descriptor, the colour nomenclature employed for three examples of colours, each presented in a variety of situations (for example, in isolation, in contrast with other colours and in context - that is to say contextualized as part of a picture), has been examined. These three examples are referred to as Cases 4, 5 and 6 and are described below. In each of these cases one and the same colour is presented in a variety of settings.

Case 4

The pale blue colour of the sky (from Image No. 32) in contrast with a clear blue and a clear green (Image No. 4, top). (See Appendix 4.2)

Table 6.71 Image No. 4

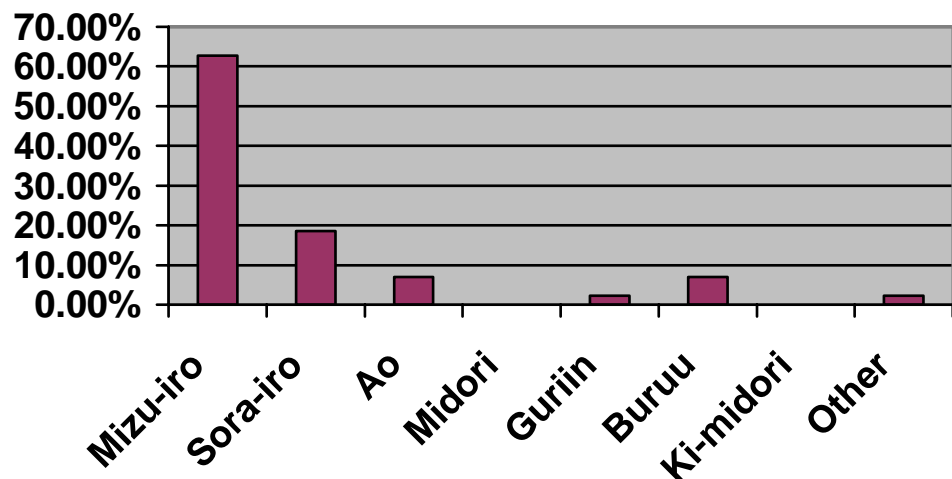
Description: tri-coloured triangles (top)

Total no. of instantiations: 43

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Burruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 14	M: 4	M: 2	M: 0	M: 1	M: 3	M: 0	M: 1
F: 13	F: 4	F: 1	F: 0	F: 0	F: 0	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens 4	Teens	Teens	Teens	Teens	Teens	Teens	Teens
20s 13	20s	20s 2	20s	20s	20s	20s	20s
30s 5	30s 2	30s	30s	30s	30s 1	30s	30s
40s 1	40s 1	40s	40s	40s	40s 1	40s	40s
50s 1	50s 2	50s 1	50s	50s	50s	50s	50s
60s 1	60s 2	60s	60s	60s	60s	60s	60s
70s 2	70s 1	70s	70s	70s 1	70s 1	70s	70s 1
Percentage	62.79%	Percentage	18.60%	Percentage	6.98%	Percentage	0%
Percentage		Percentage	6.98%	Percentage	2.32%	Percentage	6.98%
Percentage		Percentage	0%	Percentage		Percent	0%
Percentage		Percentage		Percentage		Percentage	2.32%

* 'guree' (grey)

Tri-coloured Triangles (top)



Case 4 (continued): the same colour presented in contrast with turquoise (Image No. 5, base)

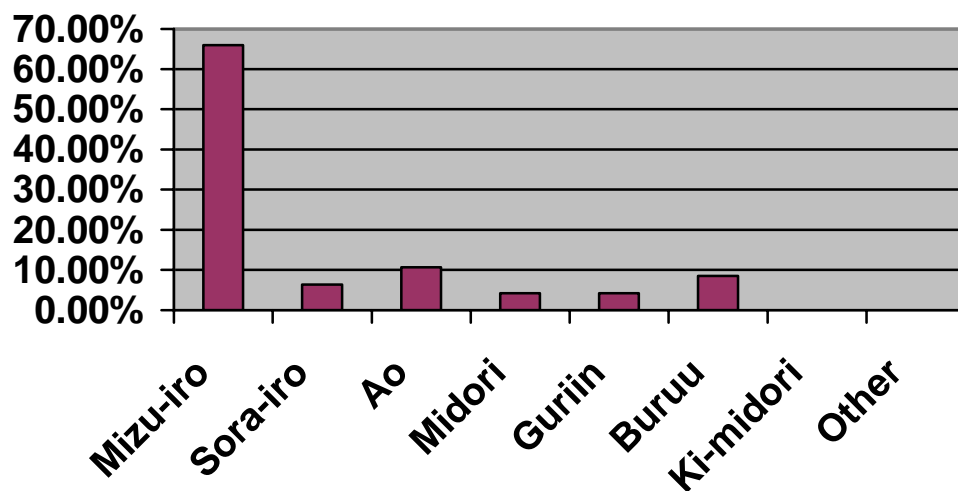
Table 6.72 Image No. 5

Description: 'atomic dome' shape (base)

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other								
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender								
M: 18	M: 1	M: 2	M: 2	M: 2	M: 2	M: 0	M: 0								
F: 13	F: 2	F: 3	F: 0	F: 0	F: 2	F: 0	F: 0								
Age	Age	Age	Age	Age	Age	Age	Age								
Teens 3	Teens	Teens 1	Teens	Teens	Teens	Teens	Teens								
20s 13	20s	20s 2	20s 1	20s 1	20s	20s	20s								
30s 7	30s 1	30s 1	30s	30s	30s	30s	30s								
40s 2	40s	40s	40s	40s	40s 1	40s	40s								
50s 2	50s	50s	50s 1	50s	50s 1	50s	50s								
60s 1	60s 1	60s	60s	60s	60s 1	60s	60s								
70s 3	70s 1	70s 1	70s	70s 1	70s 1	70s	70s								
Percentage	65.96%	Percentage	6.38%	Percentage	10.64%	Percentage	4.26%	Percentage	4.26%	Percentage	8.52%	Percentage	0%	Percentage	0%

'Atomic Dome' Shape (base)



Case 4 (continued): the same colour presented in context (Image No. 32, the sky)

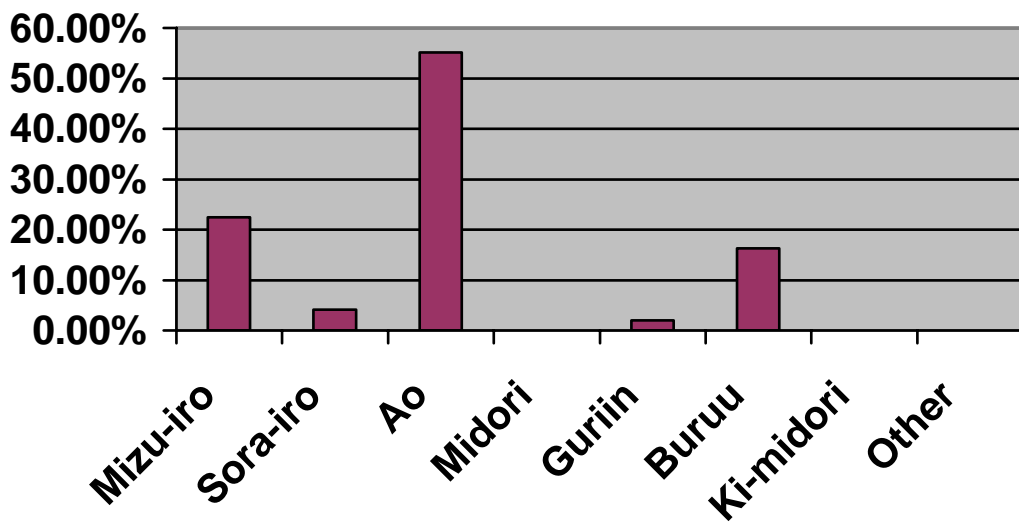
Table 6.73 Image No. 32

Description: sky

Total no. of instantiations: 49

Mizu-iro	Sora-iro	Ao		Midori	Guriin	Buruu	Ki-midori	Other							
Gender	Gender	Gender		Gender	Gender	Gender	Gender	Gender							
M: 5	M: 1	M: 14		M: 0	M: 1	M: 6	M: 0	M: 0							
F: 6	F: 1	F: 13		F: 0	F: 0	F: 2	F: 0	F: 0							
Age	Age	Age		Age	Age	Age	Age	Age							
Teens 2	Teens	Teens 2		Teens	Teens	Teens	Teens	Teens							
20s 3	20s	20s 11		20s	20s	20s 3	20s	20s							
30s 2	30s	30s 8		30s	30s	30s	30s	30s							
40s 1	40s	40s 1		40s	40s	40s 1	40s	40s							
50s 2	50s 1	50s 1		50s	50s	50s	50s	50s							
60s	60s	60s 1		60s	60s	60s 2	60s	60s							
70s 1	70s 1	70s 3		70s	70s 1	70s 2	70s	70s							
Percentage	22.45%	Percentage	4.08%	Percentage	55.10%	Percentage	0%	Percentage	2.04%	Percentage	16.32%	Percentage	0%	Percentage	0%

Sky



*Case 5 The colour of the apple skin (from Image No. 26) presented in isolation
(Image No. 9)*

Table 6.74 Image No. 9

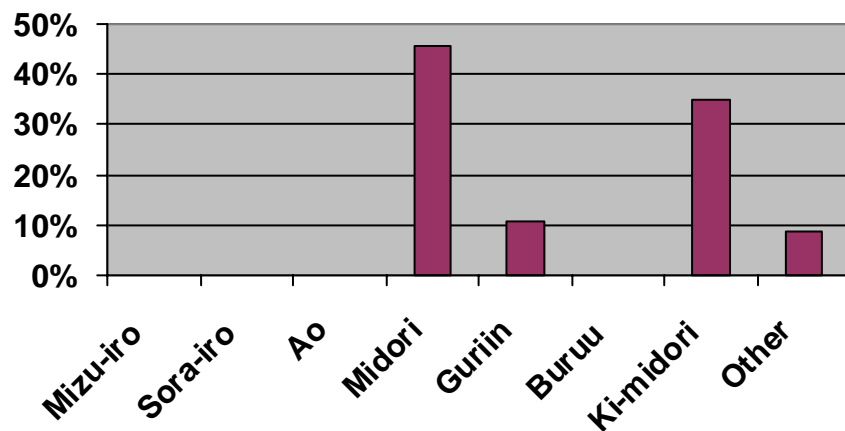
Description: small square

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 0	M: 12	M: 3	M: 0	M: 7	M: 3
F: 0	F: 0	F: 0	F: 9	F: 2	F: 0	F: 9	F: 1
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 1	Teens	Teens	Teens 3	Teens
20s	20s	20s	20s 9	20s	20s	20s 5	20s 1
30s	30s	30s	30s 3	30s 1	30s	30s 5	30s
40s	40s	40s	40s	40s 1	40s	40s 2	40s
50s	50s	50s	50s 1	50s	50s	50s 1	50s 2
60s	60s	60s	60s 3	60s 1	60s	60s	60s
70s	70s	70s	70s 4	70s 2	70s	70s	70s 1
Percentage	0%	Percentage	0%	Percentage	45.65%	Percentage	10.87%
Percentage	0%	Percentage	0%	Percentage	0%	Percentage	34.78%
Percentage		Percentage	8.70%	Percentage		Percentage	

* includes 'wakasusa-iro' (young grass colour) (2)

Small Square



*Case 5 (continued): the same colour presented in contrast with a light blue (Image
No. 17, RHS)*

Table 6.75 Image No. 17

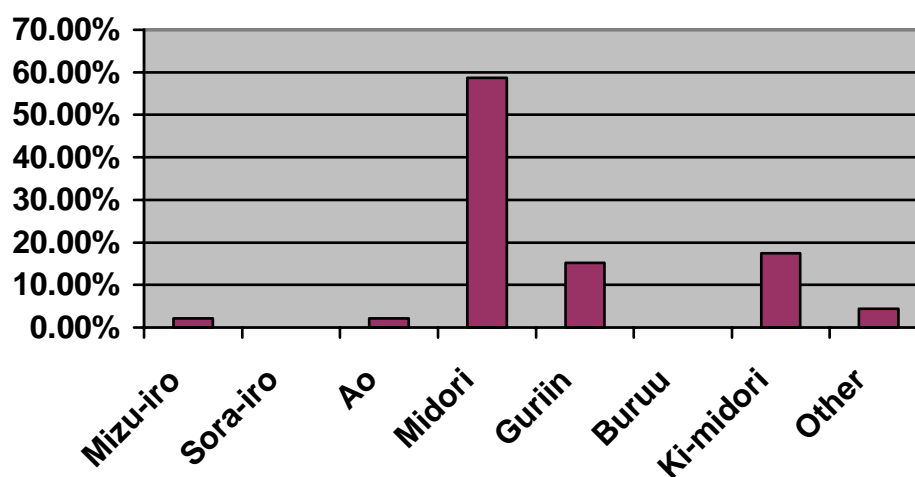
Description: ‘shape of a building side-on’ (RHS)

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 1	M: 0	M: 1	M: 17	M: 3	M: 0	M: 2	M: 2
F:	F: 0	F: 0	F: 10	F: 4	F: 0	F: 6	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens	Teens 3	Teens	Teens	Teens 2	Teens
20s 1	20s	20s	20s 12	20s	20s	20s 2	20s
30s	30s	30s	30s 5	30s	30s	30s 3	30s
40s	40s	40s	40s 1	40s 1	40s	40s 1	40s
50s	50s	50s	50s 2	50s	50s	50s	50s 2
60s	60s	60s 1	60s 2	60s 1	60s	60s	60s
70s	70s	70s	70s 2	70s 5	70s	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
2.17%	0%	2.17%	58.70%	15.22%	0%	17.39%	4.35%

includes ‘wakakusa-iro’ (young grass colour) (1)

Shape of a Building Side On (RHS)



Case 5 (continued): the same colour presented in context (Image No. 26)

Image No. 26 (green apple)

Pertinent quotations obtained from informants (by informant number):

34 りんご自体はものすごく緑、青々しくて、いかにも若々しい、、、
ある反面酸っぱそうなりんごの色をしています。

40 これは「青りんご」です。色は緑ですが、日本の場合「青りんご」
といいます。

3 青です。緑、青、青です。「青りんご」、はい。

10 青いりんご、「青りんご」。グリーン、みどり、、、

34. The apple itself is very 'midori' in an 'aoao' way, it appears very young and
fresh...but you could also say this apple colour makes it look pretty sour.

40. This is an 'ao ringo' ('ao' apple). The colour is 'midori' but in Japan it is
called an 'ao ringo'.

3. It's 'ao'... 'midori'... 'ao'...it's 'ao'. An 'ao ringo', that's what it is.

10. An 'aoi ringo' ('aoi' apple), an 'ao ringo' ('ao' apple). It's 'guriin'...
'midori'.

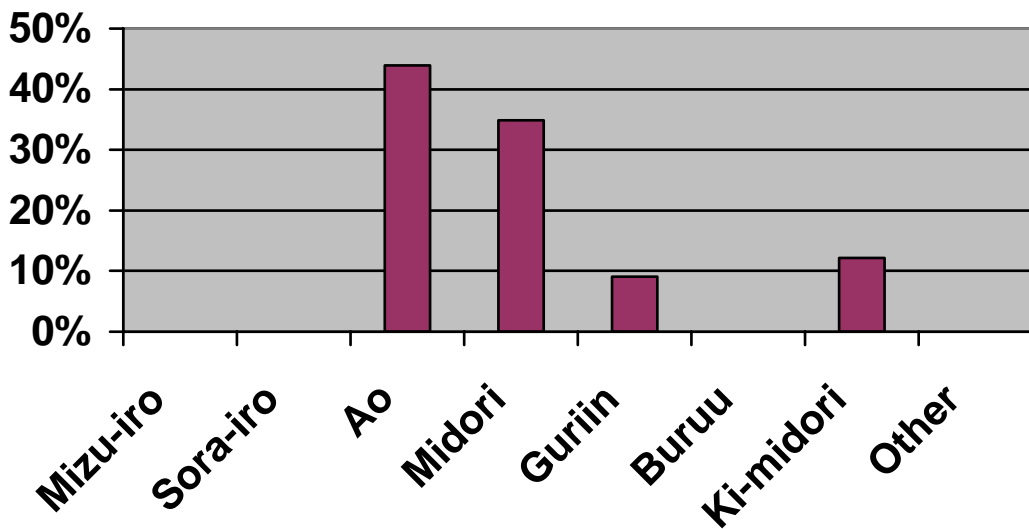
Table 6.76 Image No. 26

Description: green apples (no variation noted between responses for Images Nos 26 and 56)

Total no. of instantiations: 66

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 0	M: 0	M: 14	M: 16	M: 3	M: 0	M: 4	M: 0
F: 0	F: 0	F: 15	F: 7	F: 3	F: 0	F: 4	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 3	Teens 3	Teens	Teens	Teens 1	Teens
20s	20s	20s 11	20s 7	20s 1	20s	20s 2	20s
30s	30s	30s 4	30s 6	30s	30s	30s 2	30s
40s	40s	40s 3	40s 1	40s	40s	40s 1	40s
50s	50s	50s 1	50s 3	50s 2	50s	50s 1	50s
60s	60s	60s 3	60s 2	60s 1	60s	60s 1	60s
70s	70s	70s 4	70s 1	70s 2	70s	70s	70s
Percentage	0 %	Percentage	43.94%	Percentage	34.85%	Percentage	9.09%
	Percentage	0%		Percentage	0%	Percentage	12.12%
							Percentage
							0%

Green Apples



Case 6 The colour of a Japanese 'ao' traffic light (from Image No. 30) presented in isolation (Image No. 20)

Table 6.77 Image No. 20

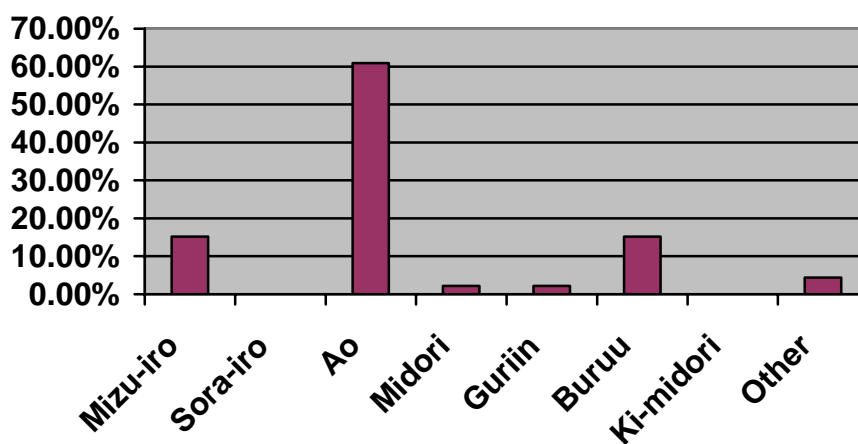
Description: small triangle

Total no. of instantiations: 46

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 6	M: 0	M: 14	M: 1	M: 1	M: 4	M: 0	M: 0
F: 1	F: 0	F: 14	F: 0	F: 0	F: 3	F: 0	F: 2
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s 2	20s	20s 12	20s	20s	20s	20s	20s 1
30s 4	30s	30s 3	30s	30s	30s 2	30s	30s
40s	40s	40s 1	40s	40s	40s 2	40s	40s
50s	50s	50s 3	50s	50s	50s	50s	50s 1
60s 1	60s	60s 2	60s	60s	60s 1	60s	60s
70s	70s	70s 3	70s 1	70s 1	70s 2	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
15.22%	0%	60.87%	2.17%	2.17%	15.22%	0%	4.35%

* 'guriin and ao mix' (1) and 'mizu-iro and ao mix' (1)

Small Triangle



Case 6 (continued): the same colour presented in contrast with a darker blue (Image No. 24, bottom)

Table 6.78 Image No. 24

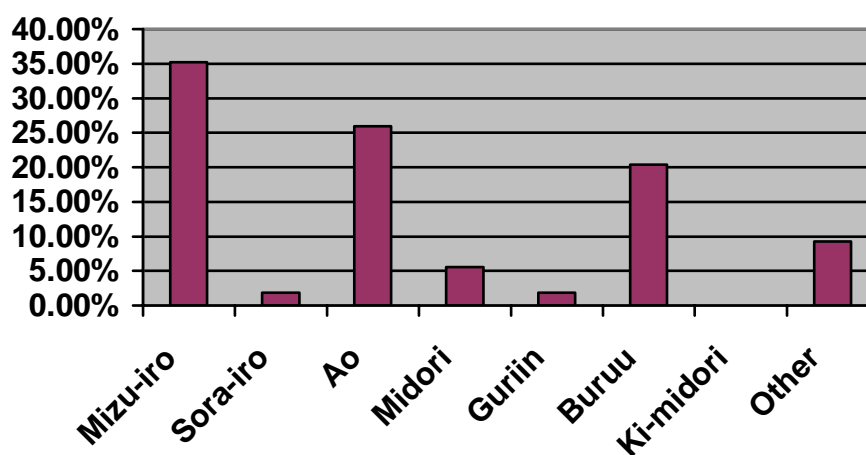
Description: two small triangles (bottom)

Total no. of instantiations: 54

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 11	M: 0	M: 8	M: 3	M: 1	M: 5	M: 0	M: 2
F: 8	F: 1	F: 6	F: 0	F: 0	F: 6	F: 0	F: 3
Age	Age	Age	Age	Age	Age	Age	Age
Teens 4	Teens	Teens	Teens 1	Teens	Teens	Teens	Teens
20s 8	20s	20s 5	20s	20s	20s 2	20s	20s 3
30s 5	30s	30s 3	30s 1	30s	30s 2	30s	30s 1
40s 1	40s	40s	40s	40s	40s 2	40s	40s
50s	50s	50s 2	50s	50s	50s 2	50s	50s 1
60s	60s	60s 2	60s	60s	60s 2	60s	60s
70s 1	70s 1	70s 2	70s 1	70s 1	70s 1	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
35.19%	1.85%	25.93%	5.56%	1.85%	20.37%	0%	9.26%

* includes 'ao-midori' (2) and 'ao and midori mix' (1)

Two Small Triangles (bottom)



*Case 5 (continued): the same colour presented in n contrast with a clear green
(Image No. 28, top)*

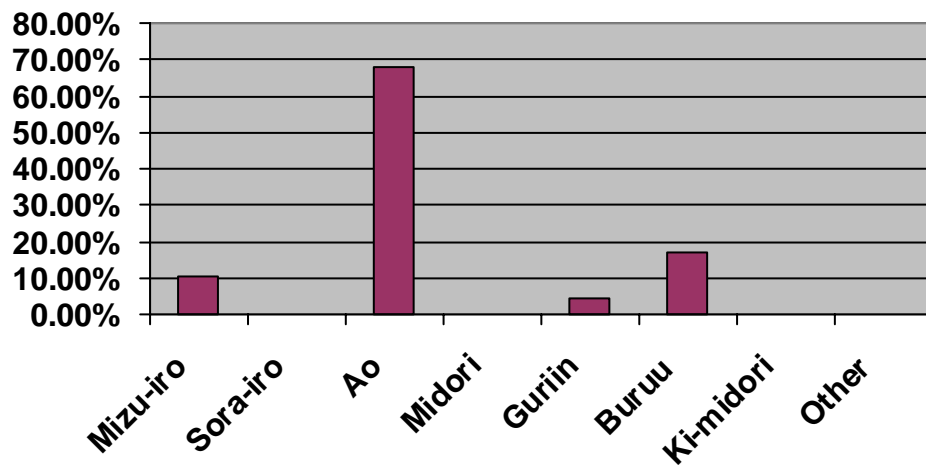
Table 6.79 Image No. 28

Description: pencil shape (top)

Total no. of instantiations: 47

Mizu-iro	Sora-iro	Ao	Midori	Guriin	Buruu	Ki-midori	Other
Gender	Gender	Gender	Gender	Gender	Gender	Gender	Gender
M: 5	M: 0	M: 16	M: 0	M: 1	M: 5	M: 0	M: 0
F: 0	F: 0	F: 16	F: 0	F: 1	F: 3	F: 0	F: 0
Age	Age	Age	Age	Age	Age	Age	Age
Teens	Teens	Teens 4	Teens	Teens	Teens	Teens	Teens
20s	20s	20s 13	20s	20s	20s 1	20s	20s
30s	30s	30s 6	30s	30s	30s 1	30s	30s
40s	40s	40s 1	40s	40s	40s 2	40s	40s
50s	50s	50s 4	50s	50s	50s	50s	50s
60s	60s	60s 2	60s	60s	60s 2	60s	60s
70s	70s	70s 2	70s	70s 2	70s 2	70s	70s
Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
10.64%	0%	68.09%	0%	4.26%	17.02%	0%	0%

Pencil Shape (top)



Case 5 (continued): the same colour presented in context (Image No. 30)

Pertinent quotations obtained from informants (by informant number):

19 ブルー、青色

7 青というか、緑というか、、、青緑。

43 青。ブルーだとか、グリーンだとかって色々議論があるみたいですが、日本流でいえば「青信号」ですから、青、、、

45 これは、あのう、信号ですね。これは、あのう、一般的に「赤」と「青」というんですが、正しくいうとこれがブルーのようなんです。信号の色ですね。これは「赤」なんだけど、「青」はブルーじゃなくて、グリーンというのですね。緑色だというのが正しいみたいですね。そういうことらしいですよ。色はね。これはブルーに見えるんですが、本当は正しくグリーンだそうですよ。緑色。

19. 'buruu', 'ao-iro'.

7. Should I call this 'ao' or perhaps 'midori'? It's 'ao-midori'.

43. It's 'ao'. It seems there is some discussion as to whether this is 'buruu' or 'guriin', but the Japanese way of describing this is 'ao-shingo' ('ao' light), so it is 'ao'....

45. This is a set of traffic lights. Generally these are referred to as being 'aka' (red) and 'ao' but if you want to be accurate it seems it is in fact 'buruu', the colour of the light. This one is 'aka', right? But the 'ao' isn't 'buruu', it's 'guriin' they reckon. Get it? It's actually 'midori-iro' it seems. That's the story here. This looks 'buruu' but actually, strictly speaking, it's 'guriin' they reckon, 'midori-iro'.

Table 6.80 Image No. 30

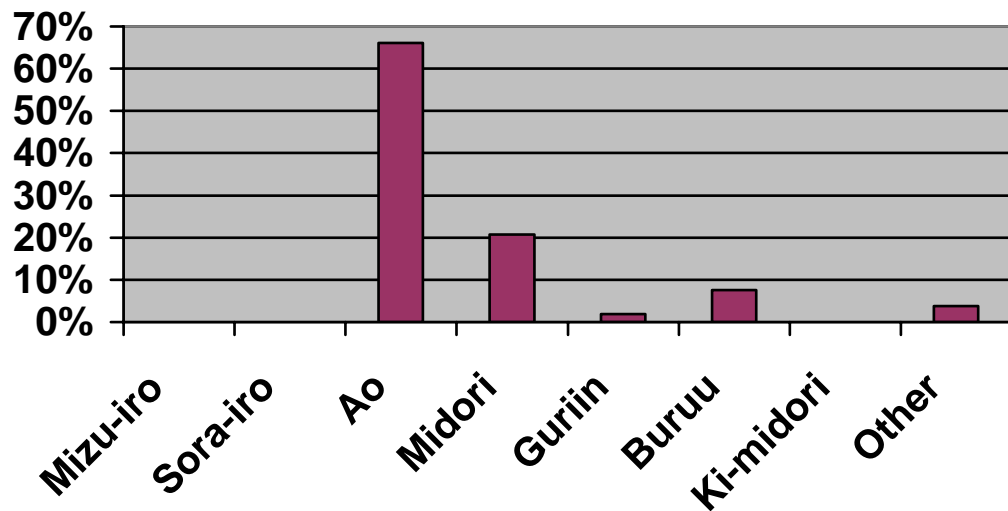
Description: traffic signal (Japan)

Total no. of instantiations: 53

Mizu-iro	Sora-iro	Ao		Midori		Guriin		Buruu		Ki-midori		Other
Gender	Gender	Gender		Gender		Gender		Gender		Gender		Gender
M: 0	M: 0	M: 18		M: 6		M: 1		M: 1		M: 0		M: 1
F: 0	F: 0	F: 17		F: 5		F: 0		F: 3		F: 0		F: 1
Age	Age	Age		Age		Age		Age		Age		Age
Teens	Teens	Teens 2		Teens 3		Teens		Teens		Teens		Teens
20s	20s	20s 12		20s 5		20s		20s 1		20s		20s
30s	30s	30s 9		30s 1		30s		30s		30s		30s
40s	40s	40s 1		40s 1		40s		40s 1		40s		40s
50s	50s	50s 3		50s		50s		50s		50s		50s 2
60s	60s	60s 3		60s		60s		60s		60s		60s
70s	70s	70s 5		70s 1		70s 1		70s 2		70s		70s
Percentage	0%	Percentage 66.04%		Percentage 20.75%		Percentage 1.89%		Percentage 7.55%		Percentage 0%		Percentage 3.77%

* 'ao-midori' (2)

Traffic Signal (Japan)



Pt 2 b (ii): Conclusions

High level of contextual dependency in colour naming.

In Case 4 a high associative value would appear to be involved with the selection of 'ao' as a descriptor for the sky (Image No. 32), with this term accounting for 55.10% of responses (collocational expressions such as 'ao-zora', 'sei-ten' and 'aoi-sora' being noticeable amongst responses received and several informants suggesting the colour was a 'kireina ao' [beautiful 'ao']). By contrast, fewer than one in four respondents (22.45%) used the term 'mizu-iro' (literally 'water colour') while 'buruu' accounted for 16.32% of all responses and 'sora-iro' (literally 'sky colour') accounted for only 4.08%. When the same colour was presented in contrast with a clear blue and a clear green (Image No. 4, top) or in contrast with a turquoise colour (Image No. 5, base) the primary response was 'mizu-iro' (62.79% and 65.96% respectively) indicating a massive shift in colour naming. In the case of Image No. 4 (top) the combined result for the near synonymous 'mizu-iro' and 'sora-iro' categories was 81.39%, while 'ao' represented only 6.98% of total responses. In relation to Image No. 5 (base) 'ao' represented just 10.64% of responses. It is evident from this that the JNS description of this colour is highly contextually dependent.

The situation is even more dramatic in Case 5. When this green colour was shown in context, 'ao' (many informants confidently identifying this as an 'ao-ringō') was the most popular descriptor (43.94% of instantiations) followed by 'midori' with 34.85% and 'ki-midori' with 12.12%. When the same colour was de-contextualized and contrasted with the 'ao' colour of Japanese traffic lights, however, the number of 'ao' responses dropped to just 2.17% (with a 23.85% increase in the percentage allotted to the category 'midori', from 34.85% to 58.70%) while sizeable increases in the percentages recorded in the 'guriin' and 'ki-midori' categories were also observed. When this colour was presented in isolation no informant (0% of responses) described it as being 'ao', the most popular descriptions being 'midori' and 'ki-midori' with 45.65% and 34.78% of responses respectively.

In Case 6 we observe that 'ao' is the most popular descriptor when this colour is presented in isolation (Image No. 20: 60.87%) as it is when presented in context (Image No. 30: 66.04%) and similarly when contrasted with a clear green (Image No. 28: 68.09%). In the case of Image No. 24 (bottom) the percentage of instantiations of 'ao' drops to 25.93%, while the percentage for 'mizu-iro' climbs to 35.19%. It is evident from this that, when compared with a darker blue, the colour in question is regarded by

many JNS as being 'mizu-iro', whereas it is considered 'ao' by a majority of respondents when it is presented in contrast to green, in isolation or in context.

It is interesting to observe that while only 2.17% of responses received in relation to Image No. 20 describe this light blue colour, in isolation, as 'midori', this figure increases nearly ten-fold, to 20.75% when the same colour is presented contextualized, in Image No. 30. Respondents appear to believe that 'because this is a traffic light it is actually "midori", and not in fact "ao", despite appearances'. In this case informants appear to be aligning their thoughts and responses with presumed knowledge ('although we call traffic lights "ao-shingo" we have been told they are in fact "midori"'), disregarding both the linguistic custom of referring to the green light as an 'ao-shingo' and their own perceptual judgment when choosing colour nomenclature.

Cases 4, 5 and 6 appear to lend weight to the argument that the context in which colours are presented does have a bearing on the nomenclature considered appropriate as descriptors. In Case 4 the highest and lowest percentages allotted to the descriptor 'ao' for the colour in question were 55.10% (Image No. 32) and 6.98% (Image No. 4, top). For Case 5 the highest and lowest percentages recorded were 43.94% (Image No. 26) and 0% (Image No. 9), while the figures for Case 6 were 68.09% (Image No. 28, top) and 25.93% (Image No. 24, bottom). Accordingly, the suggestion that the semantic boundaries of 'ao' reflect a high level of contextual dependency seems unassailable.

Use of loanwords is a feature of the speech of older JNS.

In Case 4, a total of 19 cases of loanword usage were recorded and of these 11 were attributable to informants in their 50s or older. In Case 5, 14 of the 18 loanword usages were attributable to informants in this age bracket and for Case 6 the figure was 19 from a total of 35 instantiations. This evidence accords with the findings presented in relation to the use of loanwords as descriptors for both clear examples of blues and greens and for 'in-between' colours in respect to the fact that older informants tend to employ a wider range of vocabulary as colour descriptors than do younger informants. The use of loanwords, generally speaking, can be thought of being more a feature of the descriptions offered by informants who are in their 50s or above as opposed to those who are younger.

For all images being described, a spread across all age brackets and a representation of both genders are features characteristic of virtually all colour category responses. Again, gender would appear not to be a factor involved in determining JNS choice of colour nomenclature.

CHAPTER 7

Japanese native speakers' evaluation of the appropriateness of 'ao' as a descriptor for various items and their reasons for choosing to use it

Part 3 of the research provides for an interpretation of the results delivered in Parts 1 and 2b (reported in Chapters 5 and 6) by investigating how appropriate JNS consider 'ao' to be as a descriptor for a given set of referents (the selection of which being informed by the foregoing parts of the research) and asking informants why they use 'ao' the way they do. The nature of the 'ao' schema was investigated by a) eliciting informants' judgments of the appropriateness of the use of 'ao' (recorded using a Likert scale graded from 1 [= highly appropriate] to 5 [=totally inappropriate]) and b) inviting explanatory comments as to the reasons why this term would be deemed appropriate for each of the referents in question. Abstract concepts, to which reference was made in the mental association exercise part of the research (Part 1), such as 'peace of mind', 'freshness/zest', 'a sense of being settled/relaxed' and 'coldness' and items to which reference was made during the course of the oral interviews (Part 2: for example, 'Christmas trees', 'processed seaweed', 'an unwell face' and 'green sea turtles') were incorporated into the elicitation instrument used in this part of the research.

A total of 66 informants participated in this aspect of the research. Not all informants, however, responded to every item presented in the elicitation instrument. Accordingly, for each referent being discussed the number of respondents involved is indicated (the minimum was 46 [for the referent: water] and the maximum 64 [for the referents: vegetables, frog and forest]) and the results are presented as percentages of that number. The elicitation instrument comprised 40 items of which two ('the sun' and 'the beach') were distractors. The results obtained for the 38 relevant items are presented in the order given by the item numbers in Table 7.1

Table 7.1

Items which comprised the elicitation instrument for Part 3.

Item			Item		
1	目	eye(s)	20	しそ	the 'shiso' leaf
2	野菜	vegetables	21	虫	green caterpillar
3	りんご	apples	22	痣	a bruise
distractor	お日さま	the sun (distractor)	23	ぶどう	grapes
4	蛙	frogs	distractor	砂浜	a beach
5	交通信号	traffic signals	24	蛇	snakes
6	黴	mould	25	海の亀	green sea turtles
7	芝生	lawns	26	血管	blood vessels
8	空	the sky	27	わかめ	'wakame' unprocessed edible seaweed
9	草原	grassy plains	28	海苔	'nori' processed edible seaweed
10	たんぼ	a rice field	29	バナナ	bananas
11	山	mountains	30	落ち込んだ状態	feeling depressed
12	海	the sea	31	寒い	Cold
13	竹	bamboo	32	ひげをそった後	shaven face
14	鴨の頭	duck's head	33	落ち着いた状態	feeling settled
15	葉っぱ	leaves	34	爽やか	refreshing /zest
16	木	a tree	35	安心	peace of mind
17	もみの木	A Christmas tree (Douglas fir)	36	水	Water
18	森	A forest	37	顔	human face/complexion
19	苔	moss	38	若者	youths ('wakamono')

For each of the items listed in Table 7.1 the research findings have been presented in the following format: item no. and description, total number of respondents

for that particular item, Likert scale analysis (with results for each gradation expressed in percentage terms) and finally analytical comments.

Table 7.2 Item no. 1: eye(s)

Total no. of respondents: 54

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
eye(s)	33.33%	20.37%	20.37%	1.85%	24.07%

Comments:

The prompt for this item was the generic term 目 ‘me’ (eyes), which is applicable equally to animals and humans. Evidence has already been presented in Part 2 b(i) which indicates that it is the colour (blue vs green) of the eye rather than whether it is a human or animal (cat) eye which is the determining factor in relation to the empirical usage of ‘ao’ as descriptor (for Images Nos 10 and 11 [the blue human eye and the blue cat’s eye] ‘ao’ accounted for 51.06% and 59.57% of responses respectively, whilst for Images Nos 12 and 13 [the green human eye and the green cat’s eye] the figures were 2.17% and 4.00%).

It is evident from responses received to Part 3 of the research that ‘me’ was understood by the majority of informants to refer to human eyes, with 30 informants stating that ‘gaijin’ (foreigners) can have eyes which are ‘ao’, a further five saying ‘ao’ is applicable to describe the eyes of ‘seiyojin’ (Westerners) and one other saying it is appropriate to describe the eyes of ‘hakujin’ (Caucasians).

Evidence of a binary situation (where all human eyes are classified as either ‘ao’ or ‘kuro’) was identified in three responses, one suggesting ‘for foreigners “ao” is the only colour possible’, another stating that ‘Japanese eyes are “kuro” as opposed to “ao” for Westerners’, and the third stating that ‘ao’ was ‘the only descriptor possible to distinguish foreigners’ eyes from Japanese eyes’. It was pointed out by collaborators in this research that ‘aoi me’ is a term used synonymously with ‘Westerners’ and that if one has married an ‘aoi me’ the reference is to an ‘aoi me no hito’ (person with ‘aoi me’), or person of Caucasian ancestry. A total of seven informants made reference to the expression ‘aoi me’, suggesting that collocational factors were influential in

determining their judgment of the level of appropriateness of 'ao' as a descriptor for this item.

In terms of the actual colour itself, one respondent indicated that the green-embracing aspect of 'ao' is evident in relation to this item, stating that 'Some Westerners' eyes are actually "ao" and others are "midori gakatteiru", but all are "ao" anyway'. One respondent stated that 'dolls can have eyes which are "ao" '.

The fact that one in three informants (33.33%) indicated that 'ao' was 'highly appropriate' as a descriptor for eyes and yet nearly one in four (24.07%) suggested that it was 'totally inappropriate' suggests that an element of ambivalence exists, or alternatively that the term 'me' was being interpreted by some respondents as a reference to Japanese people's eyes only.

Table 7.3 Item no. 2: vegetables

Total no. of respondents: 64

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
vegetables	23.43%	18.75%	17.19%	4.69%	35.94%

Comments:

It should be noted that the terms ‘yasai’ and ‘vegetables’ are not direct equivalents of each other. The literal meaning of ‘yasai’ is ‘leaves of the fields’ and thus, strictly speaking, root or other non-leafy vegetables should not be included in this category and certainly could not be considered prototypical examples of ‘yasai’.

For this item the percentage of informants who selected the no. 1 and no. 5 rankings were the reverse of those presented in Item 1 (‘eyes’). Approximately one in four respondents suggested ‘ao’ was highly appropriate as a descriptor for vegetables, while approximately one in three suggested it was totally inappropriate. Whilst on the surface this may appear to suggest the existence of an element of ambivalence in terms of the suitability of ‘ao’ as a descriptor for this item, there is evidence to suggest that the term ‘ao’ was being interpreted by some respondents as a reference to the colour blue. Eight respondents stated that the colour of ‘yasai’ was ‘midori’, while another two suggested ‘ao’ could be appropriate as a descriptor for this item if there was a ‘strong colour’ involved or if the plants were ‘dark green and leafy’. There were four other references suggesting that ‘healthy, leafy growth’ would be a condition for ‘ao’ to be deemed a suitable descriptor.

These comments accord with the findings presented in Part 2b(i) (Images Nos 27b [‘sasa’ bamboo grass] and 32 [lawn]) where it was noted that there was an attributive aspect to the use of ‘ao’ which related to the number of leaves involved and their level of freshness and healthiness.

The most common response received, made by some 20 informants, stipulated that ‘yasai’ needed to be fresh (variously described as ‘shinsen’, ‘mizumizushii’ and ‘ikiiki toshita’) or freshly picked in order to qualify for the descriptor ‘ao’ (or ‘aoao-shii’). One informant stated that apart from being fresh, leafy vegetables needed to be plentiful, that is to say, presented en masse. Just one or two samples of ‘yasai’ would be described as being ‘midori’, but when presented en masse ‘ao’ would be highly

appropriate as a descriptor. There was a suggestion made by four informants that in order to be ‘ao’, vegetables, whether on the table, in the market or still in the ground, needed to appeal visually - they needed to look appetizing.

Six informants made statements which suggested that collocations 青野菜 ‘ao-yasai’ (‘ao’ vegetables) [five instantiations] and 青物 ‘ao-mono’ (literally ‘ao things’) [one instantiation] may have been influential in determining informant responses. In addition, one informant stated that using ‘ao’ as a descriptor for vegetables was ‘an established linguistic tradition’.

Vegetables which research collaborators suggested indisputably fitted the ‘ao-yasai’ category were ‘horenso’ (spinach), ‘chingenso’ (bok choy) and ‘komatsuna’ (choy sum). All are essentially nothing but leaves of a dark green colour. Lettuce was not considered eligible for inclusion in the ‘ao-yasai’ category, its colour being too pale. Cabbage was considered slightly more suitable as an example of ‘ao-yasai’ than lettuce, although not a good example at all. Research collaborators made reference to tomatoes, capsicums and chillies (pictures of which also formed part of the elicitation instrument used in Part 2b(i) [Images Nos 46, 52 and 55, with ‘ao’ representing 37.70%, 20.33% and 29.09% of descriptor responses received respectively), it apparently being considered common practice to accept these as ‘yasai’ in a loose sense, although strictly speaking they do not qualify for membership of this category. For tomatoes, ‘ao’ was reported to indicate their being unripe, or not ready for consumption. The implication was that the colour change to ‘aka’ (red) had not yet taken place. Seven informants made reference to this. For capsicums and chillies, where the ‘ao’ colour never changes, the use of ‘ao’ as a descriptor was reported as connoting a freshness and healthiness which rendered them appealing and thus appetizing.

At least one respondent mentioned that summer was associated with the appearance of ‘ao-yasai’.

Table 7.4 Item no. 3: apples

Total no. of respondents: 59

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
apples	22.03%	22.03%	27.12%	3.39%	25.42%

Comments:

Approximately one in five informants reported that ‘ao’ was ‘highly appropriate’ as a descriptor for this item, with an equal number ranking it in the second position on the scale provided. At the same time approximately one in four informants reported that ‘ao’ was ‘totally inappropriate’ as a descriptor, with a similar (but slightly higher) number ranking it in the neutral middle position on the Likert scale. Comments recorded by informants suggest that, for JNS, there are broadly two factors operating in relation to the use of ‘ao’ as a descriptor for apples.

Very strong evidence is presented which indicates that the collocational factor was influential in determining responses, with no fewer than 25 informants making reference to the term ‘ao-ringo’ in their comments (of these 25 informants, however, it should be noted that seven stated categorically that the colour of the apple was ‘midori’). This result accords closely with the finding reported in Part 2b (i) of the research, which showed that, in the context of describing a green apple, ‘ao’ received very considerable support from informants, there being many references to ‘ao-ringo’ amongst the 43.94% of responses which incorporated ‘ao’ as a descriptor for Image No. 26.

There were also 23 comments made by informants suggesting that, to varying extents, ‘ao’ was deemed appropriate as a descriptor for this item when the intention was to imply that the fruit was unripe (‘not ready to harvest’ or ‘not ready to eat’), with one informant commenting that the colour of the fruit was ‘midori’. In addition, there were 6 comments made by informants suggesting that the usage of ‘ao’ as a descriptor would imply that there was an expectation that a change of colour could reasonably be expected (‘when it [the fruit] hasn’t yet changed colour’ [1], ‘before the fruit takes on colour’ [2], ‘it’s awaiting a change of colour’ [2], ‘“ao” means it’s not “aka” [red] yet’ [1]).

The responses from two informants suggest the existence of a binary situation in which apples are classified as being either ‘aka’ (one response suggested ‘futsu no aka’ [the usual ‘aka’]), or alternatively ‘ao’. The comment was also made that the expressions ‘akai ringo’ and ‘aoi ringo’ were easy to say, in contrast to the expression ‘midori [-iro] no ringo’, which was considered clumsy and not an expression which ‘rolled off the tongue naturally’. Furthermore, one informant offered the opinion that the use of ‘ao-ringo’ is a linguistic tradition and that, accordingly, since childhood he had felt that apples were ‘ao’.

The findings outlined above suggest that JNS consider ‘ao’ appropriate as a descriptor for apples either because they are familiar with, and accepting of, the collocation ‘ao-ringo’ or alternatively because they understand the descriptor to imply ‘the state of being unripe’ (or alternatively the related notion of ‘due to change colour’). The conclusion may also be drawn that JNS consider apples to be generally describable by the category binaries - ‘aka’ and ‘ao’.

Table 7.5 Item no. 4 frogs

Total no. of respondents: 64

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
frogs	7.81%	12.50%	10.94%	3.13%	65.63%

Comments:

The table above indicates that, for this item, 20.31% of informants ranked ‘ao’ as either no. 1 (highly appropriate) or no. 2 on the Likert scale. This figure is very close to the 20.41% recorded in part 2b(i) of the research, a figure indicating the proportion of empirical descriptions received which incorporated ‘ao’. A majority (65.63%) of informants, however, completely rejected the use of ‘ao’ as a descriptor for this item.

While seven informants made reference to the expression ‘ao-gaeru’ in their written comments, suggesting that collocational factors might have been influential in determining informants’ judgments, six of these categorically stated that the colour of the ‘ao-gaeru’ frog was ‘midori’. Furthermore, one informant who indicated ‘ao’ was highly appropriate as a descriptor for this item did so on the condition that the colour of the frog would have to be dark green. The use of ‘ao’ as a descriptor for certain (green) frogs was explained by one informant (who chose the neutral third ranking on the scale) thus: ‘it is a remnant of a bygone age in which we didn’t have the differentiating colour term “midori”’.

There were three suggestions recorded indicating that the frog’s skin ideally should be wet in order for ‘ao’ to be considered an appropriate descriptor (‘when it’s wet and shiny’, ‘if the skin is wet’, ‘when it is wet and healthy looking’), while the existence of an ‘aka’ vs ‘ao’ binary situation was indicated by one informant who juxtaposed the terms ‘ao-gaeru’ (a *hyla*: a tree frog) and ‘aka-gaeru’ (a *ranid*: a true frog).

The results outlined above indicate that, while it was only approximately a one-third minority of informants who considered ‘ao’ to be appropriate as a descriptor for this item, there was considerable agreement amongst the JNS involved that the colour of the frog would need to be ‘midori’ (or alternatively dark green). The widespread acceptance of the expression ‘ao-gaeru’ was also evident.

Table 7.6 Item no. 5: traffic signals

Total no. of respondents: 61

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Traffic signals	47.54%	24.59%	16.39%	3.28%	8.20%

Comments:

The expression informants were asked to consider was the generic term 交通信号 ‘kotsu shingo’ (traffic lights). No suggestion as to whether the reference was to Western or Japanese traffic lights was made.

The results tabled above indicate that nearly half (47.54%) of the informants who responded to this item considered ‘ao’ to be ‘highly appropriate’ to describe a green traffic light. In Part 2b(i) of the research, again nearly half (49.02%) of all descriptions of Image No. 61 (the Australian traffic light) incorporated the descriptor ‘ao’. The results from these two parts of the research would thus appear to be in quite close accord: nearly half of the cohort involved in Part 2 of the research actually used ‘ao’ and nearly half of the cohort involved in Part 3 of the research suggested the use of ‘ao’ would be highly appropriate to describe green traffic lights (it should be noted that Image No. 61 was readily identifiable by informants as a set of non-Japanese traffic signals due to the fact that the lights were arranged vertically on the upright section of a pole as opposed to being arranged horizontally and suspended from wires strung over an intersection, as is typically the case in Japan).

In contrast to the 49.02% figure referred to above, ‘ao’ accounted for 66.04% of responses in relation to Image No. 30 (the Japanese traffic light) in Part 2b(i). This is a figure not dissimilar to the total percentage of informants who indicated ‘ao’ was, to a greater or lesser extent, appropriate to describe ‘kotsu shingo’ (72.13%). Image No. 30 was familiar to my informants and readily identifiable as being a Japanese pedestrian

traffic light. Given that the largest grouping of responses received in relation to the generic term 'kotsu shingo' presented in this part of the research involved the collocation 'ao-shingo', an expression referred to in the written comments made by no fewer than 18 informants, arguments in favour of linguistic determinism could possibly be sustained. That is to say, the existence of the collocation 'ao-shingo' perhaps may have had a significant influence on the judgments informants made in relation to the appropriateness of 'ao' as a descriptor for this item.

The results in Table 7.6 above indicate that a majority of informants (72.13%) felt that 'ao' was an appropriate term to describe traffic lights, although this feeling was not universally shared, with 11.48% indicating they felt it was an inappropriate descriptor and 16.39% choosing not to commit their vote to either camp.

Sixteen informants stated that traffic lights were 'midori' or that they appeared 'midori', while nine contended that they were 'ao' or appeared 'ao'. Six other informants indicated an element of lack of certainty in terms of categorizing this item as being either 'ao' or 'midori', providing comments such as 'they are sometimes "ao" and sometimes "midori"', 'they are in between "ao" and "midori"' and 'they appear as both "ao" and "midori"'. One informant wrote that 'they [traffic lights] appear "midori" but we say "ao"'.

Seven informants made comments to the effect that 'ao' just 'sounds better' than 'midori' (goro ga ii) or that, in effect, logic dictates that the colours of the traffic signals should be 'aka', 'ki' and 'ao'. Three others stated that referring to the green traffic light as 'ao' was an established linguistic tradition, while a further eight comments, made along similar lines, reflected the sentiment that 'we've been taught that "midori" can be "ao" since childhood'.

There were three informants who indicated that traffic lights are thought of in terms of (and referred to as) being 'aka' and 'ao', in effect suggesting the existence of a linguistic binary situation in relation to this item. Yet another three informants (all of whom ranked 'ao' as being a 'highly appropriate' descriptor) wrote that 'ao' is associated with the concepts of 'safety' and 'peace of mind'.

In summary, while most informants (nearly three out of four) indicated they thought 'ao' to be appropriate as a descriptor for traffic lights, this proposition was by no means universally embraced (27.87% of respondents either indicated they thought 'ao' to be inappropriate or reserved judgment by marking the 'neutral' no. 3 ranking on the Likert scale).

Collocational factors would appear to have played a significant role in explaining the high level of support for ‘ao’ as a descriptor for this item and it is worth noting that there was a significant number of informants who suggested that ‘ao’ was the natural choice of descriptor for traffic lights, as it rolls off the tongue easily.

Table 7.7 Item no. 6: mould

Total no. of respondents: 57

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
mould	21.05%	31.58%	17.54%	7.02%	22.81%

Comments:

For this item approximately equal numbers of informants indicated that ‘ao’ was ‘highly appropriate’ and ‘totally inappropriate’ (21.05% and 22.81% respectively). With varying degrees of conviction, 52.63% of respondents indicated that ‘ao’ was to be considered a suitable descriptor for this item while 29.83% indicated it was inappropriate. (By way of comparison, when shown a picture of mould in cheese in Part 2b(i), 36.84% of responses incorporated the descriptor ‘ao’).

A total of 27 informants (all of whom indicated that ‘ao’ was, to a greater or lesser extent, appropriate as a descriptor for this item by circling either no. 1 or no. 2 on the Likert scale) made reference to the expression ‘ao-kabi’ (‘ao’ mould) amongst the reasons they offered for making their judgments. One informant stated that ‘we have used the expression “ao-kabi” ever since learning it in childhood’ whilst another reported ‘mould looks “midori” but we call it “ao-kabi”, so we think of it as being “ao”’. Accordingly, it would appear that, at least for some informants, the collocation ‘ao-kabi’ was instrumental in precipitating the judgments they made.

There were also 16 informants who stated that mould either is or appears ‘ao’ (or ‘aoppoi’, ‘aomigakatta’, ‘aoi-iro’), the remark ‘when mould is on rice cakes it appears as an “aomi gakatta” colour’ being typical of the comments made in this regard. In addition, two informants stated that the mental image conjured up by the term ‘kabi’ (mould) is ‘ao’, while a further two informants indicated the acceptance of a broad interpretation of this term, stating that it covered both ‘ao’ and ‘midori’.

The data collected in relation to this item indicate that a significant number of JNS see mould as being ‘ao’ (with at least two informants acknowledging that ‘ao’

incorporates ‘midori’) while an even greater number were to make reference to the collocation ‘ao-kabi’ in comments they made, suggesting this may have been a contributory factor in their judging ‘ao’ to be a suitable descriptor for this item.

Table 7.8 Item no. 7: lawns

Total no. of respondents: 61

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
	22.95%	21.31%	11.48%	6.56%	37.71%

Comments:

With a total of 44.26% of informants indicating that ‘ao’ was considered an appropriate descriptor (by selecting nos. 1 or 2 on the Likert scale) and 44.27% indicating the opposite (by selecting nos. 4 or 5), the opinion of informants would appear to be quite evenly divided in relation to this item.

Of those who suggested ‘ao’ was appropriate, 18 stated that the grass would need to be healthy, fresh and lush, full of life and growing vigorously (生い茂っている、生き々としている、瑞々しい、茂っている) (‘oishigetteiru’, ‘ikiiki toshiteiru’, ‘mizumizushii’, ‘shigetteiru’). In addition, four informants commented that ‘ao’ suggests that there are new leaves (young growth) in evidence. There were six references to ‘aoi’ lawns being beautiful and well-maintained, with the blades of grass growing tightly together. There were an additional six references to ‘aoi’ lawns which stipulated they needed to be expansive. Two informants suggested that golf links would typically be described using ‘ao’, while there were three references to summer being the time when this descriptor would be most appropriate. A total of 12 comments were made specifically in relation to the question of colour, nine of which stated that the colour of ‘ao’ lawns was ‘midori’ and three simply stating that the colour would need to be dark or strong.

In addition, one informant recorded the comment that ‘describing lawns as “aoao” is a linguistic tradition’, while the responses of five informants suggested that collocational factors may have been significant for informants when judging the appropriateness of incorporating ‘ao’ as a descriptor for this item: ‘aoi shibafu’ (‘aoi’ lawns) [2], ‘aoao toshigetteiru’ (growing in ‘aoao profusion’) [1], ‘ao-shiba’ (‘ao’ lawns) [1], ‘tonari no shibafu wa ao’ (the neighbour’s lawn always appears ‘ao’) [1].

Both the connotative aspects of the meaning of ‘ao’ (expansiveness, a profusion of healthy greenery being visible) and the significance of linguistic collocation indicated above accord closely with the findings outlined in Part 2b(i) of the research. Similarly, the figure of 22.95% (the percentage of informants who indicated that the use of ‘ao’ as a descriptor for lawns was highly appropriate) recorded here is comparable to the figure of 16.98% recorded in Part 2b(i).

In summary, although informants were evenly divided as to the appropriateness of ‘ao’ as a descriptor for this item, those who indicated it was appropriate generally expressed agreement in relation to the need for the lawn in question to be lush (with new growth in evidence), expansive, healthy and well-maintained. Collocational factors also were shown to have been of likely significance in making judgments.

Table 7.9 Item no. 8: the sky

Total no. of respondents: 48

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
The sky	64.58%	31.25%	4.17%	0.00%	0.00%

Comments:

The results for this item confirm the findings reported in Parts 1 and 2b(i) of the research. There was little doubt that the cohort of informants involved in Part 3 deemed ‘ao’ to be suitable as a descriptor for the sky, with 0.00% of responses suggesting it was inappropriate (although 4.17% [2 informants] opted to select the ‘neutral’ no. 3 on the Likert scale provided). Clearly this part of the research reinforces the fact that JNS feel that ‘ao’ is an appropriate descriptor for this item. We have already seen that they associate the term ‘ao’ with the sky (Part 1) and also use the term ‘ao’ when describing the sky (Part 2b).

Information gleaned from the reasons offered by informants as to why ‘ao’ was deemed appropriate as a descriptor for this item can be summarized as follows:

Six informants indicated they felt the colour of the sky either was ‘ao’ (or ‘massao’) or appeared ‘ao’ (‘aoku mieru’), while five made reference to the expression ‘aoao’, explaining variously that ‘this refers to the piercing blue of a summer sky’ or that reference was to ‘a wide open sky’. The collocation ‘ao-zora’ was referred to by one informant, while others indicated that, apart from the denotative meaning (the

colour of the sky is prototypically blue), ‘ao’ carried associative (‘the sky and “ao” and are inseparable’ [1], ‘they [‘aoi’ skies] can be seen in summer’ [2], ‘they occur after rain in autumn’ [1], ‘they’re common in Miyazaki after rain’ [1]), attributive (‘it’s beautiful’ [1], ‘you feel good’ [2]. ‘you free from ‘nayami’ (cares and worries) [1], ‘you feel happy’ [1], ‘it’s lovely’ [1], ‘the weather’s good’ [1], there’s no smog’ [1]) and connotative (‘spacious’, ‘wide open skies are ‘ao’ [4]) aspects in its semantic embrace.

Table 7.10 Item no. 9: grassy plains (‘kusahara’/’sogen’)

Total no. of respondents: 59

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
grassy plains	10.17%	23.73%	23.73%	1.70%	40.68%

Comments:

The data above indicate that while 42.38% of respondents indicated that, either mildly or strongly, they considered ‘ao’ to be inappropriate as a descriptor for this item, a total of 33.90% expressed the opposite opinion. In addition, nearly one in four respondents indicated a neutral position, neither committing themselves to stating it to be an appropriate nor an inappropriate descriptor.

The requirement identified in Part 2b(i) for a sense of spaciousness to exist in relation to ‘aoi’ lawns (noted also in relation to Item no. 7) was mirrored in relation to this item, with nine informants indicating that an expansive grassy area would be required in order for plains to be described using the term ‘ao’. A typical comment was to the effect that if you have 一畝 ‘ichi men’ (a large surface area) spreading out in front of you it could be described as being ‘ao’ (one informant commented that ““ao” is for boundless expanses, “midori” is for small areas which you can comprehend’). In addition, three informants commented that the grass plants are ‘collectively “ao” but individually “midori” ‘ and that viewed from a distance a grassy plain would appropriately be described as being ‘ao’. ‘Midori’, however, would be the descriptor if you were standing amongst the grass.

For ‘ao’ to be applicable as a descriptor, two informants commented that there would need to be lots of grass visible, while a further five stated that plentiful new growth and foliage should be the main characteristic of ‘aoi’ grassy plains. Five

informants suggested that the grass involved needed to be lush ('shigetteiru'), alive and vibrant ('ikiiki toshiteiru') and vigorous and healthy ('mizumizushii') if it was to be considered 'ao' (or 'aoao').

Interestingly, while the comment 'when grass is young it is an "ao" close to "midori"' was made by one informant, ten others indicated that as a descriptor for this item 'ao' was not being used in a denotative sense, stating that grassy plains are in fact 'midori'. There were two collocative expressions recorded in the data: 青い草原 'aoi kusahara' (an 'aoi' grassy plain) and 青い草「が広がっている」 'aoi kusa' [ga hirogatteiru] (a spacious area of 'aoi' grass), both used by informants who stated that the colour of the grass as such was 'midori'.

The association between an 'aoi kusahara' and the notion of 'being beautiful' or otherwise making one 'feel good' was pointed out by five informants who variously suggested a grassy plain would be describable as being 'ao (i)' when it was 'beautiful' or 'in sunlight' or when 'the weather is fine' or alternatively when 'there is a fresh breeze that makes you feel good' or 'there's a carpet of grass nodding in a breeze'. Seasonal implications were suggested by a further two informants who stated that 'kusahara' would be thought of as being 'aoi' 'in summer' and 'in spring'. One informant commented that the use of 'ao' for grassy plains was suitable in a poetic context.

In summary it would seem that, while a large number of informants reject the use of 'ao' as a descriptor for grassy plains, those who accept it largely acknowledge that it is not a denotative usage of the term, but rather one which suggests an association with the warmer seasons of spring and summer when the grass plants thrive and convey a sense of beauty. The use of 'ao' to describe grassy plains connotes a sense of there being a large area covered with lush vegetation and suggests that the scene is being viewed from a distance.

Table 7.11 Item no. 10: a rice field

Total no. of respondents: 62

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
A rice field	12.90%	16.13%	22.58%	3.23%	45.16%

Comments:

The findings for this item are not dissimilar to those reported for Item no 9 (grassy plains), the data indicating that while 48.39% of informants responded that, either mildly or strongly, they considered ‘ao’ to be inappropriate as a descriptor for this item, a total of 29.03% indicated that they considered it to be appropriate. (By way of comparison, 22.00% of informants in Part 2b(i) used ‘ao’ when describing the picture of the rice field [Image No. 33]). 22.58% of informants indicated a neutral position, neither committing themselves to stating it to be an appropriate nor an inappropriate descriptor.

The attributive factors identified in Part 2b(i) relating to the requirement for ‘aoi’ foliage to be healthy and flourishing is evident also in relation to this item. Three informants indicated that the health of the plants in question would be a factor determining the appropriateness of ‘ao’ as a descriptor. In addition nine responses included comments to the effect that a large area of cultivation would be a condition for a rice field to be described as ‘ao’. As for the previous item, the expression 一面 ‘ichi men’ (a large surface area) was typically stated as a condition determining the appropriateness of the use of ‘ao’.

Six informants stated that the colour of the plants is ‘midori’ (sometimes incorporating an adjectival description such as ‘a beautiful “midori”’ or alternatively ‘aoaotoshita midori’) while one informant simply suggested that the leaves would have to be ‘beautiful’ in order for ‘ao’ to be applicable. Another informant stated that ‘individually the rice plants are “midori”, but overall the scene is described as being “aoao”’, adding that ‘We have always described a carpet of “midori” as “aoao”’.

Eleven informants made specific reference to the state of health of the leaves of the rice plants, indicating variously they needed to be young and fresh (‘mizumizushii’) [5], vigorous of growth and flourishing (‘oishigetteiru’) [5] or simply healthy (‘genki’) [1]. Some informants referred to the age of the plants (‘2 - 4 weeks after planting’ [1], ‘2 months after planting’ [1]) while five others mentioned summer (comments including

‘the thriving new growth of early summer’ [1] and ‘appropriate for strong plants under a blazing sun in mid-summer’ [1]).

There were two collocational expressions recorded in the data, 青田 ‘aota’ (‘ao’ field) and 青葉 ‘ao-ba’ (‘ao’ leaves), both used by informants who stated that a whole field of rice plants would be required for these expressions to be appropriate.

In summary it would seem that, while nearly one in two informants rejected the use of ‘ao’ as an appropriate descriptor for rice fields, those who accepted it largely acknowledged that it is not a denotative usage of the term, but rather one which suggests foliage of a healthy appearance, possibly involving an association with summer when the rice plants are healthy and thriving - their appearance conveying a sense of beauty. The use of ‘ao’ to describe fields of rice connotes a sense of there being an extensive area involved.

Table 7.12 Item no. 11: mountains

Total no. of respondents: 60

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Mountains	16.67%	28.33%	11.66%	1.67%	41.67%

Comments:

The data indicate that informants were reasonably evenly split in terms of judging ‘ao’ to be appropriate as a descriptor for this item, with 45.00% of respondents choosing the no. 1 or 2 rankings on the Likert scale and 43.34% selecting rankings 4 or 5. A total of 11.66% chose the neutral no. 3 ranking.

In Part 2b(i) it was observed that 58.33% of empirical descriptions the blue mountains depicted in Image No. 33 incorporated the term ‘ao’, while the figure dropped to 6.12% for the forest covered mountains depicted in Image No. 38. Accordingly it would appear that the denotative aspect of ‘ao’ is highly significant in the judgments informants made.

The influence of collocation seemed small, despite ‘Ao-yama’ being a common surname and well-known place name, with only one informant using the expression 青い山脈 ‘aoi sanmyaku’, (an ‘aoi’ mountain range) explaining that this was the name of a classical movie. Support for the use of ‘ao’ was offered for a variety of reasons.

Individual informants wrote comments such as ‘after rain mountains appear “aoao”’, “‘ao” refers to the glory of nature’ and ‘it is a poetic usage’. A total of five informants made comments to the effect that ‘ao’ is appropriate when the trees are covered in ‘midori’ which is beautiful and dark in colour. A further five stated that the term would be applicable to fresh, young leaves, some suggesting ‘viewed in the sun’ while others stating that ‘young leaves look ‘ao’ in the shade, as do mountains’. The notion of summer (夏) or early summer (初夏) was referred to by seven informants, while nine informants referred to the need for a lush profusion of healthy leaves (noted in relation to Images Nos 2 [vegetables], 7 [lawns] and elsewhere), some suggesting the mountains needed to be ‘buried in leafy trees’ or ‘cloaked in dark green’. On this point there was no consensus across all members of the cohort; one informant stated that ‘ao’ would be appropriate ‘before the leaves go dark green’.

A total of 13 responses included the explanation that lots of trees would need to be viewed from a distance, some suggesting that the visual image should be hazy, misty or blurred.

In summary, there was widespread agreement amongst informants that ‘ao’ was appropriate to describe mountains covered in many trees bearing lush, summer foliage when viewed from a distance. Interestingly, the collocation ‘Ao-yama’ was not mentioned by a single informant.

Table 7.13 Item no. 12: the sea

Total no. of respondents: 61

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
The sea	67.21%	24.59%	6.56%	0.00%	1.64%

Comments:

The data point to massive support for the use of ‘ao’ as a descriptor for the sea, with only 1.64% of respondents stating that its use would be inappropriate for this item. The 67.21% of informants who indicated that ‘ao’ was ‘highly appropriate’ accords closely with the results recorded in Part 2b(i), where, for Image No. 34, 68.18% of responses incorporated the descriptor ‘ao’ and for Image No. 40 (top) the figure was 65.91% (the use of ‘ao’ dropped off, however, where a non-clearly blue colour was presented [Image No. 40 (bottom): 14.04%, Image No. 44: 26.32%]).

The association respondents make between the sea and ‘ao’ is evident from the comments recorded by seven informants who stated variously that ‘it’s common sense’ [1], ‘the mental image we have of the sea is “ao” ‘ [2], ‘we feel it’s “ao” ‘/’we’ve always considered it “ao” [2], ‘we call it “ao” without thinking’ [1] or ‘it’s always “ao” in songs’ [1]. Five informants stated that an ‘aoi’ sea would be one which was calm and beautiful, while a further three suggested the sea was ‘aoao’ (or ‘aoao toshiteiru’) when it was in the sun [1], when there was no foam [1] or, simply, when it was beautiful [1]. Three other respondents indicated an associative aspect to the meaning of ‘ao’ relating to the sea being clear [1], inviting [1] or refreshing [1]. Three further informants made reference to summer when explaining why they considered ‘ao’ to be suitable as a descriptor for this item.

Contradictory opinions were offered as to the depth of the water involved (two informants stating it should be ‘shallow and clear’, while five others said ‘deep and clear’), however a requirement for there to be an expanse of sea was alluded to by four informants (‘open sea’ [1], calm and expansive [3]).

A total of 25 informants made reference to the denotative usage of ‘ao’ by stating that the sea either ‘looks “ao” ‘, ‘appears “ao” ‘ or ‘is “ao” (or “massao”) ‘. Incidentally, a lack of understanding of foreign loanword terms was demonstrated in the response given one informant who stated that ‘the sea and the sky are the same colour...emerarudo guriin (emerald green)’.

Clearly for this item a huge majority of informants believe ‘ao’ is, to a greater or lesser degree, appropriate as a descriptor, with many referring to the denotative aspect of the term and likewise many making reference to associative aspects (expansiveness, calmness, attractiveness and beauty) of its semantic embrace.

Table 7.14 Item no. 13: bamboo

Total no. of respondents: 58

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Bamboo	15.52%	32.76%	13.79%	6.90%	31.03%

Comments:

A greater proportion of informants suggested that ‘ao’ was appropriate as a descriptor for this item (48.28%) than those who deemed it to be inappropriate

(37.93%). The figure for those who deemed ‘ao’ to be ‘highly appropriate’ was 15.52%, virtually midway between the percentages of instantiation usages recorded in Part 2b(i) for Images Nos 27 (10.42%) and 35 (20.76%). In other words the percentage of informants in Part 3 of the research who deemed ‘ao’ to be ‘highly appropriate’ as a descriptor was very close to the average percentage recorded for the two images of bamboo for which empirical descriptions were sought in Part 2b(i). This would suggest that, on average, in approximately 15% of cases informants both felt ‘ao’ was appropriate as a descriptor and in fact used it to describe this item. Furthermore, the collocation 青竹 ‘ao-dake’ (‘ao’ bamboo) noted in Part 2b(i) [item 35] was alluded to in this part of the research by nine informants.

Twenty five informants variously stated that a condition of ‘ao’ being applied to bamboo would be that it was ‘beautiful’, ‘lush’, ‘growing rapidly’, ‘growing vigorously’, ‘young’ or ‘healthy’. One informant stated that a ‘substantial amount’ of bamboo could be referred to collectively as ‘ao’ while individual examples would be described as being ‘midori’. Two respondents suggested ‘aoao’ would be possible as a descriptor if the bamboo were ‘good’ or ‘fresh’, while ten informants, including one who used the term ‘aoao’, stated that the colour of the bamboo is ‘midori’ [9] or ‘dark green’ [1]. On the question of colour, one informant made the comment ‘it’s “midori” but it looks “ao”’, while three others made references to immaturity, variously stating ‘young bamboo is close to “ao” in colour’, ‘“ao” can be used before the colour changes to “midori”’ and ‘when it is mature it is “midori”’.

In addition there were two informants who made comments relating to the seasons, one suggesting ‘spring’ was the time to see bamboo which is ‘ao’, the other suggesting ‘summer’. Three informants made reference to ‘ao’ being considered the natural descriptor for this item, stating that ‘we have always called it “ao”’.

In summary it can be stated that a) nearly half of informants felt that ‘ao’ was appropriate to describe this item and that b) there was a general sense that ‘aoi’ bamboo needed to be young and fresh with lush foliage. The point was made also that while the descriptor ‘ao’ could be applied (the collocation ‘ao-dake’ being commonly cited), the colour of the plant as such was in fact ‘midori’.

Table 7.13 Item no. 14: duck’s head

Total no. of respondents: 62

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Duck's head	1.61%	0.00%	6.45%	0.00%	91.94%

Comments:

With 91.94% of informants deeming 'ao' to be 'totally inappropriate' as a descriptor for this item, it is clear that a large majority reject this term outright. Only four informants, two males (in their 20s and 60s) and two females (in their 30s and 70s), chose other options. The sole informant to suggest 'ao' was 'highly appropriate' as a descriptor, a male in his 60s, gave as his reason 'the neck of the duck is usually a dark green, but when light catches it is a beautiful "ao"'. A similar association between 'ao' and an ill-defined sense of pleasing beauty has been noted elsewhere in this chapter.

No informant made reference to the collocation 'ao-kubi'.

These results accord very closely with the results reported in relation to Image No. 36 in Part 2b(i) of the research. There, only 4.08% of responses employed 'ao' as a descriptor and it was determined that collocation was not a factor in influencing informants' descriptions. It would appear clear that the official name 'ao-kubi', is not a factor in influencing informants' responses in either Part 2 or 3 of the research, it being neither often used (in Part 2) nor referred to by any respondent (in Part 3).

Table 7.16 Item no. 15: leaves

Total no. of respondents: 58

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Leaves	24.14%	34.48%	20.69%	5.17%	15.52%

Comments:

A majority of 58.62% of informants indicated they felt that 'ao' was, to varying degrees, appropriate as a descriptor for this item. This figure does not correlate closely with the figure of 10.42% recorded for the empirical descriptions given in relation to Image No. 37 in Part 2b(i). This perhaps suggests that the image presented there did not depict leaves which would be considered prototypically 'ao'. A total of 20.69% of informants, on the other hand, deemed 'ao' to be inappropriate to describe this item.

A total of 15 informants stated that healthy leaves (or young leaves or buds) could be 'ao' if they were fresh (生き生きとしている) or on young trees. In addition, a total of 14 informants said the leaves would need to be 'midori' (or a vivid 'midori') or a 'dark, healthy colour'. Four informants pointed out that, individually, the leaves would be considered to be 'midori', while if presented en masse the descriptor 'ao' would apply. A further two informants stated that a 'large area' would need to be involved in order for 'ao' to be applicable and that the leaves would need to cover and hide the tree branches involved. A total of seven informants stated that lush growth and there being lots of healthy leaves (生い茂っている) would be conditions which would need to be met in order for 'ao' to be an appropriate descriptor. The appearance of a profusion of new verdure (新緑) was described as the phenomenon which would naturally meet the conditions needed for the 'ao' schema to be awakened. A total of seven informants made reference to summer (夏) or early summer (初夏) while two mentioned spring (春) or early spring (立春). Seven informants stated that leaves are called 'ao' and perceived of as being 'ao', while a further seven used the expression 'aoao', one informant commenting that 'when painting or colouring in leaves we use the term "midori", but in nature we refer to them as being "aoao"'. Three informants stated that 'ao' is appropriate to describe leaves which are 'beautiful or strong and healthy', one suggesting that 'ao' would refer to 'the most beautiful "midori"'.

Only one informant referred to the collocation 'ao-ba', supporting the finding outlined in Part 2b(i) that collocational factors were not significant in relation to this item. This informant pointed to a binary situation in which leaves would naturally be categorized as either being 青葉 'ao-ba' ('ao' leaves) or 紅葉 'koyo' (red leaves).

Finally there were three informants who simply suggested that 'ao' was appropriate as a descriptor for this item because either a) they had been taught that 'ao' was the word to use or b) 'ao' was easier to say than 'midori' ('you can't say 'midorimidori shiteiru!').

In summary, a majority of informants indicated that they deemed 'ao' to be an appropriate descriptor for this item, offering a wide variety of reasons for their judgments. There was general agreement that young, healthy and fresh leaves which

were beautiful (or a beautiful ‘midori’) and which were viewed in profusion (possibly in spring and summer) would qualify as candidates for the descriptor ‘ao’.

Table 7.17 Item no. 16: a tree

Total no. of respondents: 60

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
A tree	11.67%	15.00%	5.00%	5.00%	63.33%

Comments:

Although the percentages of informants who indicated ‘ao’ would be appropriate/inappropriate as a descriptor for this item and the previous item differ considerably (only 26.67% indicated ‘ao’ would be appropriate for this item as opposed to 58.62% for ‘leaves’, while 68.33% suggest ‘ao’ would be inappropriate as a descriptor for trees, as opposed to 20.69% for Item no. 15), a similar picture emerges in relation to these items in terms of the conditions under which ‘ao’ would be considered an appropriate descriptor. Indeed, in reference to trees, eight informants made the comment that using ‘ao’ would be a reference to leaves, as opposed to branches or other parts of the tree.

One informant stated that ‘ao’ would be appropriate as a descriptor for the overall view that trees provide, but that it would not be applicable to individual trees. Another informant suggested that ‘ao’ would only be appropriate if the tree or trees in question were ‘beautiful’, arguing that they should ‘hold natural appeal by virtue of their reflecting the glory of nature’. Two informants stated that ‘ao’ would be appropriate where the colour of the tree(s) was either ‘midori’ or a dark green. References to the seasons were made by four informants (two suggesting summer and two suggesting spring was the time of the year when trees could be ‘ao’), while another four made the point that fresh, young growth (新緑) needed to be in evidence in order for ‘ao’ to be considered an appropriate descriptor for this item. A further eight informants indicated that the tree’s growth needed to be ‘healthy, vigorous and profuse’ (青々と茂っている), resulting in the tree being ‘enveloped in new greenery’.

There was no evidence of collocational factors being involved in informants’ judgments, despite ‘Ao-ki’ being a common surname.

In summary, informants stated that when a tree is described using ‘ao’ the reference is specifically to the leaves and the overall impression created. There was considerable support for the suggestion that a profusion of fresh, young healthy leaves needed to envelop the tree.

Table 7.18 Item no. 17: a Christmas tree (Douglas fir)

Total no. of respondents: 61

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
A Christmas tree	6.56%	6.56%	18.03%	4.92%	63.93%

Comments:

As was the case with Item no. 16, the percentage of informants who deemed ‘ao’ to be inappropriate as a descriptor for this item was in the high 60s (68.85%). Of the respondents who felt that ‘ao’ was appropriate, 17 made reference to the need for the Christmas (or fir) tree to display ‘vitality of life’ i.e. to demonstrate vigorous growth and display plenty of healthy leaves or alternatively be ‘fresh’ or ‘freshly cut’. Two informants made the point that the ‘foliage should be beautiful’, while another stated that ‘ao’ would be appropriate as a descriptor if the Christmas tree(s) were in the mountains and viewed from a distance. Similarly, there were two informants who stated that ‘aoao’ would be appropriate as a descriptor when reference was being made to the overall visual impression gained when standing back and admiring the tree(s) in question. One informant indicated an association between fir trees and springtime when the ‘new leaves’ (若葉) were ‘young and fresh’ (若々しい). In addition, the collocation 青葉 ‘ao-ba’ (‘ao’ leaves) was referred to by two respondents, one of whom commented that ‘when considered individually the leaves are “midori”’. A total of seven informants stated that the colour of the foliage was ‘midori’, but opinion varied as to whether reference was to the light green colour of the budding leaves or the darker green associated with mature foliage.

In summary, the evidence presented in relation to this item suggests that the use of ‘ao’ can activate more than one schema simultaneously: while acknowledging that the foliage of Christmas trees is ‘midori’ (when viewed individually), the vitality of the

plant, as evidenced by the number of healthy leaves, and the sense of grandeur obtained as a result of viewing the item from a distance are two such aspects of the schema in question.

Table 7.19 Item no. 18: a forest

Total no. of respondents: 64

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
A forest	4.69%	12.50%	12.50%	1.56%	68.75%

Comments:

For this item, as for Item nos. 16 and 17, approximately seven out of ten informants (70.31%) rejected the use of ‘ao’ as a descriptor. Furthermore, as noted for Item nos. 11 (mountains ‘yama’) and 16 (a tree ‘ki’), collocational factors did not prove significant in the judgments informants made, despite ‘Ao-mori’ being the name of a both a city and a prefecture in Japan.

A wide variety of reasons were offered by respondents who deemed ‘ao’ to be an appropriate descriptor for this item (17.19% of the total). Five stated that the foliage of the trees in the forest needed to be luxuriant and healthy (生い茂っている) while two suggested that the scene the mountain provided must be ‘beautiful’ or ‘pleasing’, an association noted elsewhere in the research (e.g. in reference to Image No. 38 in Part 2b(i)). A further three stated that the forest would have to be ‘remote’, ‘deep in the mountains and away from the sun’ or ‘distant’. Six informants stated that the leaves of the trees in the forest would need to be ‘midori’, ‘strong “midori” ‘ or ‘dark “midori” ‘, while one informant stated that ‘ao’ would be suitable as a descriptor for a forest provided it took in a large expanse of one’s vision. Another informant stated that ‘aoao’ would be suitable to describe the impression gained as a result of the overall picture presented to view. There were two informants who drew an association between forests and (early) summer.

In summary, supporters of the descriptor ‘ao’ for this item indicate that pleasing, luxuriant, ‘midori-coloured’ foliage viewed from a distance would allow this descriptor to be used appropriately.

Table 7.20 Item no. 19: moss

Total no. of respondents: 54

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Moss	14.82%	11.11%	12.96%	9.26%	51.85%

Comments:

Whereas when informants were asked to describe a picture of moss growing naturally on rocks (Part 2b(i), Image No. 39) only 5.66% of responses made reference to the term ‘ao’, in this part of the research just over one in four respondents (25.93%) indicated they deemed it to be appropriate as a descriptor for this item. A clear majority (61.11%), however, deemed it inappropriate, with 51.85% indicating they considered it to be ‘highly inappropriate’.

The collocation ‘ao-goke’ was referred to by four informants, suggesting it may have brought some influence to bear upon the judgments of the informants concerned. This suggestion accords with the findings outlined in Part 2b(i).

Ten informants stated that moss could be described as being ‘ao’ if it were either ‘midori’ or ‘dark “midori”’, while another nine stated that ‘ao’ would be an appropriate descriptor for moss when it is ‘moist’ (one suggesting ‘with water drops’), ‘young’ or ‘fresh’ (瑞々しい) or otherwise lush and healthy. One informant stated that moss was typically ‘ao’ during the rainy season and another made the comment that moss was ‘ao’ when it was ‘beautiful and displaying its full glory’. Two informants stated that ‘aoao’ could be an appropriate descriptor, one adding ‘when not in the sun’. Furthermore, six informants stated that ‘ao’ or ‘aoao’ could be used as descriptors when there was an expanse of moss (一面) being described, not just little clumps here and there, while a similar sentiment was expressed by another informant who stated that ‘at close range it’s “midori” (目の前にある場合) but “ao” when viewed from a distance’ (遠くから見た場合). An association between ‘ao(i)’ moss and ‘rocks’ and ‘temple grounds’ was made by four informants. Finally, one respondent simply stated that ‘we’ve always been taught that it [moss] is “ao”’.

In summary, although only approximately one in four informants accepted ‘ao’ as an appropriate descriptor for this item, several different suggestions were offered as to the conditions which would make its usage appropriate. Generally, the picture painted by informants suggests that an expansive area, viewed from a distance, would need to

be involved and the moss would need to be growing in profusion with a lush appearance - possibly with moisture evident and growing in the shade.

Table 7.21 Item no. 20: the beefsteak plant ('shiso')

Total no. of respondents: 59

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
The beefsteak plant	16.95%	18.64%	27.19%	6.78%	30.51%

Comments:

Approximately one-third (35.59%) of respondents indicated they deemed 'ao' to be appropriate to describe this item. This figure is not dissimilar to the 31.15% of responses recorded in Part 2b(i), the empirical description part of the research. Again, as noted also in Part 2b(i), a linguistic binary situation was in evidence here, with four informants stating that 'shiso' can either be 赤 'aka' (i.e. 'aka-jiso') or 青 'ao' (i.e. 'ao-jiso'). In addition, 11 informants used the collocation 'ao-jiso' in their explanations as to why they deemed the beefsteak plant to be 'ao(i)' and the collocation 青葉 'ao-ba' ('ao' leaf') was reported by one informant.

Two informants stated that 'ao(i) jiso' had to be appetizing when on a plate, while one other said that 'shiso' could be 'aoao' if it had a pleasing colour. Another informant stated that in order for 'ao' to be an applicable descriptor for this vegetable 'an expansive field' of it needed to be presented to the speaker.

A total of three informants made the point that the leaves of the plants in question would need to be a strong colour ('a strong 'midori' ' [1], 'a deep colour' [1] or 'a dark colour'[1]) while nine others stated simply that the colour would need to be 'midori' [8] or 'wakakusa iro' [1], with no reference being made as to the depth of the hue.

As noted for other items in this part of the research there were informants who stated that they have always been taught to use 'ao' as a descriptor for this item [2] and that customarily 'ao' (or 'aoao') is the descriptor used [1]. Furthermore, one informant stated that the choice of 'ao' was probably determined as a result of いいまわし

‘iimawashi’ (the turn of phrase involved), suggesting that there is a perception that ‘ao’ is just easier to say than ‘midori’ and that ‘ao-jiso’ rolls off the tongue easily, whereas ‘midori-jiso’ does not.

In common with other plant items included in this section, a considerable number of informants made reference to the requirement for there to be evidence of plentiful and fresh leaves. 19 informants stated variously that the foliage would need to be fresh and healthy/crispy (いきいきとしている), freshly picked/presented (新鮮) or fresh with healthy leaves (瑞々しい).

In summary, for this item a similar number of respondents deemed ‘ao’ to be appropriate as a descriptor as inappropriate (35.59% and 31.29% respectively). The requirement for the leaves of the plant to be fresh and healthy was commonly mentioned and evidence of collocational factors being involved in informants’ judgments was noted. A linguistic binary situation (‘aka’ vs ‘ao’) was identified in relation to this item, while it was commonly stated that the colour of the plants, as such, is ‘midori’.

Table 7.22 Item no. 21: green caterpillar

Total no. of respondents: 58

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Green caterpillar	12.07%	13.79%	10.35%	5.17%	58.62%

Comments:

For this item well over half the informants (63.79%) indicated they deemed ‘ao’ to be inappropriate as a descriptor, with 58.62% stating they felt it was ‘highly inappropriate’. At the same time, however, one in four informants (25.86%) deemed it to be appropriate.

The effect of collocation and linguistic tradition was clearly evident, with the expression ‘ao-mushi’ being referred to by no fewer than eight respondents, one of whom stated that ‘we’ve always used the term “ao-mushi”’. The collocational factor was noted also in Part 2b(i) of the research, where 45.31% of responses received included the description ‘ao-mushi’. A total of seven informants stated that the colour of the

‘mushi’ involved was ‘midori’. As noted elsewhere, the opinion that ‘ao’ was easy to say was in evidence.

In summary the evidence presented here suggests that, while a majority of informants reject the use of ‘ao’ as an appropriate descriptor for this item, a considerable minority accepts it, acknowledging that the colour, as such, is ‘midori’. Collocational factors would appear to have been instrumental in certain judgments made in relation to this item.

Table 7.23 Item no. 22: a bruise

Total no. of respondents: 59

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
A bruise	40.68%	30.51%	16.95%	3.39%	8.48%

Comments:

For this item 40.68% of informants indicated they felt that the term ‘ao’ was ‘highly appropriate’ as a descriptor. This is not greatly dissimilar to the figure of 44.83% recorded for Item no. 43 in Part 2b(i) in relation to the proportion of responses which incorporated ‘ao’ in empirical descriptions recorded.

Two informants (one of whom indicated that ‘ao’ was appropriate as a descriptor for this item, the other indicating otherwise) stated that they had always been taught that this item could be described using the term ‘ao’, while another two drew an association between this term and pain, stating that bruises were typically both ‘ao’ and painful. Yet another two informants linked their judgment of the appropriateness of ‘ao’ to the phenomenon of the もうこはん ‘mokohan’ - the large bluish bruise typically found in the lower lumbar region of newborn Japanese babies.

A total of six informants stated that ‘ao’ would be appropriate when the bruise in question was ‘new’ or ‘fresh’, while 19 made reference to the collocations ‘ao-tan’ (‘ao’ bruise [dialect]) [5] and ‘ao-aza’ (‘ao’ bruise [standard Japanese]) [14]. With just 1 exception all these indicated that ‘ao’ should be deemed an appropriate descriptor for this item. This suggests that collocational factors were likely to have been influential in the process of determining responses.

A total of 33 respondents stated that ‘aza’ (bruises) either were, or appeared to be, ‘ao’ (or ‘ao-ppoi’/ ‘massao’).

Clearly a majority of informants endorsed 'ao' as an appropriate descriptor for this item, although this was by no means a universally held position. Most felt that 'aza' were indeed 'ao' (or appeared 'ao') and with nearly one in three respondents making reference to a collocation ('ao-aza' or 'ao-tan') in their written comments, the evidence would suggest that collocational factors played a part in determining informants' judgments.

Table 7.24 Item no. 23: grapes

Total no. of respondents: 62

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Grapes	6.45%	4.84%	19.36%	9.68%	59.68%

Comments:

A close correlation is evident between the percentage of references incorporating the descriptor ‘ao’ recorded in the empirical description section of the research (10.20%) and the percentage of informants who indicated they deemed ‘ao’ to be an appropriate descriptor for this item in this part of the research (11.29%). Similarly, the linguistic binary situation noted in Part 2b(i) is reflected here also, with four informants referring to the collocation ‘ao(i)-budo’ (‘ao(i)’ grapes), suggesting a juxtaposing of this term with the alternative term ‘aka-budo’. In addition, four informants stated that the use of ‘ao’ connotes a sense of the grapes in question being somehow appealing (‘not blemished or bruised’ (傷のないもの) [1], ‘young, fresh and healthy’ (瑞々しい) [1]), ‘fresh and appetizing’ (新鮮でおいしそう) [2]. There were also five informants who stated that ‘ao(i)-budo’ were ‘midori-iro’ (or ‘moegi-iro’), while one suggested that ‘ao-budo’ referred either to a particular variety of grapes (identified as ‘Niagra’) or to other grapes when they had not yet ‘changed colour’. A total of ten respondents indicated that ‘ao’ would describe grapes which were not yet ripe or ready for eating, while one other informant stated that ‘‘ao-budo’ are actually ‘midori’ when held in the hand’, suggesting that ‘ao’ would be a suitable descriptor for grapes when viewed from a distance, but not when viewed at close range. The effect of linguistic custom was evident in the response of one informant who simply stated that ‘we have been taught that “midori” is “ao” ‘.

In summary, the data indicate that, while only a minority of informants deemed ‘ao’ to be appropriate as a descriptor for this item, its use was capable of activating more than one cultural schema. Many informants who deemed ‘ao’ to be an appropriate descriptor for this item made reference to the situation of being ‘unripe’, while others commented on the sense of appeal (being ‘fresh’ or ‘appetizing’) that the word conveyed. For some respondents the descriptor ‘ao’ suggested that an expected colour change had not yet taken place. The suggestion that a small number of grapes held in

the hand would be described as ‘midori’ implies that a large number viewed at a distance would be ‘ao’. Furthermore, the collocations ‘ao-budo’ and ‘aoi-budo’ were identified in the comments made by informants, suggesting that these may have been influential in the judgments they made in relation to the level of appropriateness of ‘ao’ as a descriptor for this item. There was also evidence suggesting that a linguistic binary situation which juxtaposed ‘ao’ and ‘aka’ existed in relation to this item.

Table 7.25 Item no. 24: snakes

Total no. of respondents: 57

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Snakes	1.75%	7.01%	8.77%	3.51%	78.95%

Comments:

While 45 of the 57 informants who responded to this item in the questionnaire (78.95%) indicated that they deemed ‘ao’ to be ‘highly inappropriate’ as a descriptor for this item, a total of five (8.76% of informants) indicated that, to varying degrees, they deemed ‘ao’ to be appropriate. There were seven references to the collocation ‘Ao-daisho’ in the written comments made by respondents but these were variously recorded by informants who deemed ‘ao’ to be appropriate as a descriptor [2], inappropriate [1], neither (by selecting the neutral middle ranking of the Likert scale) [1] or they were made by informants who offered only comments but who did not indicate a scale ranking [3]. Accordingly, collocational factors must be considered to have not been influential in determining informants’ judgments in relation to this item. This accords with the findings reported in Part 2b(i) in relation to Image No. 49.

Table 7.26 Item no. 25: green sea turtles

Total no. of respondents: 63

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Green sea turtles	0.00%	3.18%	12.70%	0.00%	84.13%

Comments:

The results for this item were amongst the most clear-cut in this part of the research. With 84.13% of informants indicating ‘ao’ was considered ‘totally inappropriate’ for this item, and 0% suggesting it was ‘highly appropriate’, it is evident that most informants rejected ‘ao’ in this case. Two informants (3.18%) ranked ‘ao’ at no. 2 on the Likert scale and the reasons they gave were that ‘green things are called “ao”’ and ‘“midori” is a deep “ao”’. Eight informants chose the neutral no. 3 ranking on the scale and offered reasons indicating various aspects of the ‘ao’ schema identified in relation to other items: ‘if it looks healthy’ (health) [1], not fully grown (immaturity) [1] and ‘if the shell is covered in seaweed or moss’ (plenty of natural green) [1]. In addition, one informant suggested that ‘ao’ might be possible ‘when the turtle is wet’ while another stated that ‘“ao” can be used to incorporate green things’ and yet another stated that ‘the mental image we have of turtles is that they are “ao”’. The collocation ‘ao umi-game’ was referred to by one respondent who selected the neutral no. 3 ranking on the Likert scale. Finally, one informant stated that the colour could be 碧, a character possible of reading ‘ao’ or ‘midori’.

In summary, although ‘ao’ was roundly rejected as an appropriate descriptor by a majority of informants, a number of different aspects of the ‘ao’ schema were referred to by individual informants, thus suggesting that an extension of the usual frames of reference has occurred in relation to this item. Collocation proved not to be a factor in determining informants’ judgments.

Table 7.27 Item no. 26: blood vessels

Total no. of respondents: 60

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Blood vessels	15.00%	15.00%	16.66%	5.00%	48.33%

Comments:

While a majority of informants (53.33%) indicated they felt that ‘ao’ was inappropriate to describe this item, 30.00% expressed the opposite opinion. This figure of 30.00% correlates quite closely with the figure of 25.00% noted in relation to Image No. 50 in Part 2b(i) of the research where collocations were identified in the descriptions informants made of the image presented to them. In this part of the research

also collocations were in evidence in the comments recorded by informants. The collocation 青筋 ‘ao-suji’ (‘ao’ blood vessels) was found in the transitive expression 青筋を立てる ‘ao-suji wo tateru’ (to make ‘ao’ veins stand out) [2] and likewise in its intransitive counterpart 青筋が立つ ‘ao-suji ga tatsu’ (‘ao’ veins stand out) [1], both of which mean ‘to be extremely angry’ or ‘purple with rage’ (to the extent that engorged veins bulge out at the temples). Alternative collocations, such as ‘aoi kekkan’ (‘aoi’ blood vessels) [1] and ‘aoku deteiru’ ([blood vessels] stand out and appear ‘ao’) [2] were also noted in the comments made by informants. One of the informants who used the turn of phrase ‘ao-suji wo tateru’ explained that, by linguistic tradition, JNS ‘accept this expression as normal’. Another informant supported this position by commenting that ‘[in Japan] we are taught that this [item] can be described this way’. Twenty informants stated that blood vessels either were, or appeared, ‘ao’.

In summary, it can be seen that while only approximately one in three informants accepted ‘ao’ as a descriptor for this item, many of these protagonists stated that blood vessels were in fact (or appeared) ‘ao’. Evidence is also presented which suggests that linguistic tradition and collocation may have been instrumental in affecting the judgments of some informants.

Table 7.28 Item no. 27: ‘wakame’ unprocessed edible seaweed

Total no. of respondents: 63

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Wakame seaweed	7.94%	7.94%	9.52%	3.18%	71.43%

Comments:

Nearly three out of four informants (74.61%) rejected ‘ao’ as a descriptor for this item while 15.88% deemed it appropriate. In this context 15.88% is a relatively a small percentage, however it is considerably greater than the 3.85% recorded in relation to Image No. 51 in Part 2b(i).

Five informants indicated that a condition that would need to be met in order for ‘ao’ to be applicable to this item would be that it be ‘mizumizushii’ (explained variously by informants as ‘fresh’, ‘young and fresh’, ‘fresh and tender’, ‘freshly harvested’ and

‘wet and fresh’). By contrast, one informant stated that ‘wakame’ was ‘ao’ when bought dry.

Four informants stated that ‘wakame’ seaweed could be ‘ao’ (or ‘massao’) provided it appeared appetizing, while three others made reference to the colour involved, stating variously that it would need to be ‘midori’ or ‘a fresh, dark colour’. One informant indicated there was a need for a lot of the seaweed to be present in order for ‘ao’ to be an appropriate descriptor, while another pointed to the phenomenon of linguistic tradition, simply stating that ‘we are taught that it [‘wakame’] is “ao”.

As noted in relation to other items investigated in this part of the research, it is evident that a number of different semantic categories were operating when ‘ao’ was used as a descriptor for this item. The use of ‘ao’ connoted freshness to some informants, while to others it connoted a sense of ‘being appetizing’. For at least one informant the implication was that there should be ‘plenty’, a large enough amount to provide a visual spectacle of green. Interestingly, there were conflicting comments made in relation to whether the ‘wakame’ should be wet or dry. The evidence presented here would suggest that for some informants certain semantic categories are more salient than others and that individuality plays a role in terms of judgments made.

Table 7.29 Item no. 28: ‘nori’ processed edible seaweed

Total no. of respondents: 60

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Nori seaweed	6.66%	20.00%	13.33%	8.33%	51.66%

Comments:

A minority of 26.66% of informants deemed ‘ao’ to be an appropriate descriptor for this item. Thirteen informants made reference to the collocation 青海苔 ‘ao-nori’ (‘ao’ processed edible seaweed) in the reasons they offered for their judgments (of these, one suggested that ‘ao-nori’ was probably thus named because the sea is ‘ao’ while another stated that ‘ao-nori’ was the name of a ‘midori-coloured’ seaweed and a third stated that ‘for some reason it is called “ao-nori” even though it is “midori” ‘). In terms of the colour of this item, seven informants stated that it was ‘midori’ or ‘fuka-midori’ (deep ‘midori’), one making the comment that ‘it’s a deep “midori” but we call

it “ao”. Five other informants stated that ‘ao’ was appropriate as a colour descriptor (‘it’s “ao” when it’s in the sea’ [2], ‘some varieties look “ao”’ [1], ‘it’s “ao” when on rocks’ [1], ‘it’s “midorippoi, aoppoi”’ [1]) while a further two suggested that ‘ao-nori’ could be a deep ‘midori gakatta ao’ (a deep ‘ao’ tinged with ‘midori’) or simply a ‘dark, healthy colour’.

Two informants stated that there was a linguistic tradition which involved using the descriptor ‘ao’ for this item and that consequently its use was thought of as being quite natural. One of these two added that ‘ao-nori’ was an easy expression to say. Two other informants stated that the use of ‘ao’ to describe ‘nori’ conveyed a general sense of appeal, suggesting specifically that ‘nori’ was appetizing (あおあおとした海苔はおいしそう ‘aoao toshita nori wa oishiso’). In addition, three informants stated that the use of ‘ao’ connoted a sense of freshness - either that the plant itself was fresh or that it had been freshly harvested (あおあおした海苔は新鮮 ‘aoao shita nori wa shinsen’).

In summary it can be said that, as has been noted in relation to other items, the use of ‘ao’ can activate different aspects of the ‘ao’ schema in different people. In relation to this item, some informants felt that ‘ao’ connoted a sense of freshness while others commented on the fact that it conveyed a sense of the seaweed in question being appetizing.

Evidence is presented which suggests that collocational factors may have been influential in determining the judgments of certain informants. Evidence is also presented which indicates that there was not agreement across the cohort of informants as to whether the use of ‘ao’ in relation to this item should be considered denotational or not. The fact that referring to ‘nori’ as ‘ao’ is a long-standing linguistic tradition, and the fact that ‘ao-nori’ is easy to say, were also pointed out by informants.

Table 7.30 Item no. 29: bananas

Total no. of respondents: 56

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Bananas	16.07%	30.36%	17.86%	3.57%	32.14%

Comments:

Opinion was clearly divided as to the appropriateness of ‘ao’ as a descriptor for this item. A total of 46.43% of informants deemed ‘ao’ to be appropriate, while 35.71% indicated they held the opposite view. Interestingly, the result obtained from Image No. 59 in Part 2b(i) of the research (where 40.00% of empirical descriptions incorporated the term ‘ao’) lies virtually midway between these two figures.

Twenty informants stated that ‘ao’ [18] (or ‘aoao’ [2]) was an appropriate descriptor for bananas which were unripe. The expression まだ青い ‘mada aoi’ (still ‘aoi’) was common amongst responses, indicating an expectation that a colour change would occur. Four respondents specifically stated that bananas were ‘mada aoi’ before the expected colour change took place, while ten others commented that this description meant that they were ‘not yet ready to eat’. Four informants stated that the colour of ‘aoi’ bananas was ‘midori’, one commenting that ‘although the colour is “midori” we can’t say “mada midori”’. In other words, it is clear that the connotation of being unripe or immature is not carried by the expression ‘midori’, but only by ‘ao(i)’. Two respondents stated that ‘ao’ (or ‘aoppoi’) referred to the colour of unripe bananas, one adding that ‘the same colour in a tube of paint would be called “midori” but on bananas it is “ao”’. In addition, one informant suggested that bananas needed to be ‘young’ to be ‘ao’.

The collocation ‘ao(i)-banana’ was referred to by four informants, suggesting that collocational factors may have been instrumental in determining the judgments made by some informants. This suggestion accords with the findings noted in relation to the image of green bananas (Image No. 59) in Part 2b(i) of the research.

In summary it can be stated that the results failed to produce either an overwhelming expression of support or lack of support for the use of ‘ao’ as a descriptor for this item. Furthermore, nearly one in five informants selected the neutral no. 3 position on the Likert scale.

Most informants who deemed ‘ao’ to be appropriate as a descriptor indicated that the connotation was that the fruit was unripe, many referring to an anticipated change of colour. In addition, familiarity with the collocation ‘ao(i) banana’ was indicated by a number of respondents, suggesting collocation could have been a factor in determining informants’ judgments concerning the suitability of ‘ao’ as a descriptor for this item.

Table 7.31 Item no. 30: feeling depressed ('ochikonda jotai')

Total no. of respondents: 63

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Feeling depressed	6.35%	11.11%	11.11%	7.94%	63.49%

Comments:

A total of 71.43% of informants indicated they considered 'ao' to be inappropriate as a descriptor for this item. By contrast, 17.46% indicated they considered it appropriate, with an overwhelming majority of these informants stating that 'buruu' is the most appropriate expression.

Associative relationships were identified by two informants, one stating that 'ao' is 'associated with being shocked or terrified' while the other quoted the expressions 青ざめる 'aozameru' (to go deathly pale) and 青くなる 'aokunaru' (to lose the colour from one's face [literally 'to become 'ao'']). This association of 'ao' with the idea of losing the blood from one's cheeks accords with the findings recorded in Part 1 (the word association exercise) of the research.

One informant suggested that when depressed we feel we 'cannot see to the bottom' as is the case with the deep blue sea. It is interesting to note, however, that despite this informant referring to 'ao' as being a 'cold colour' he was not prepared to record the opinion that 'ao' should be deemed an appropriate descriptor for this item, choosing the neutral no. 3 ranking on the Likert scale.

The comment was made by several informants that in Japanese despondency is often portrayed by the colour term black ('kuro') or jet black ('makkuro') or the notion of darkness ('kurai') or pitch darkness ('makkura').

A total of 16 informants stated that 'buruu' is an expression that can be used to convey the meaning 'to feel depressed'. This accords closely with the findings recorded in Part 1 of the research, where it was noted that 'The concept of 'going pale/being unwell' ('ao-zameru', 'aoi-kaou') was only ever associated with 'ao', while 'being sad' ('sabishii') and 'depression/despondency' ('yuutsu', 'ochikomuu') were associated only with 'buruu'.

In summary, while a large majority of informants rejected ‘ao’ as a descriptor for this item, there was evidence of a mental association between ‘ao’ and the notion of going pale/losing the colour from one’s cheeks amongst those who deemed it to be an appropriate descriptor. There was also evidence that ‘ao’ does not carry the meaning of sadness/depression, but that ‘buruu’ (blue) does. This evidence supports the findings recorded in Part 1 of the research.

Table 7.32 Item no. 31: cold

Total no. of respondents: 50

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Cold	6.00%	4.00%	4.00%	2.00%	84.00%

Comments:

A large majority (86.00%) of respondents indicated they felt that ‘ao’ was inappropriate as a descriptor for this item. By contrast, a total of just 10.00% indicated they deemed it appropriate. All eight informants who did not record ‘totally inappropriate’ as a response stated either that ‘ao’ was a cold colour [1], or alternatively that a mental association was drawn between ‘ao’ and coldness [7]. This result accords with the findings outlined in relation to Part 1 of the research where a mental association between ‘ao’ and 寒い ‘samui’ (to feel cold [in oneself]) and 冷たい ‘tsumetai’ (to be cold to the touch) was identified. The only other comment made by any respondent, who incidentally marked the neutral no. 3 ranking on the Likert scale, was ‘you go “ao” with the cold’.

Clearly, while their view was not universal, approximately one in ten informants acknowledged a mental association between ‘coldness’ and ‘ao’.

Table 7.33 Item no. 32: shaven face

Total no. of respondents: 54

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Shaven face	27.78%	25.93%	20.37%	7.41%	18.52%

Comments:

For this item over half the informants (53.71%) deemed ‘ao’ to be an appropriate descriptor, as opposed to approximately one in four (25.93%) who indicated otherwise.

A total of 32 informants indicated they believed that a newly appearing beard either ‘looked’ or ‘was’ ‘ao’ (or ‘aoppoi’, ‘ajiroi’ [whitish ‘ao’], ‘aoguroi’ [blackish ‘ao’], ‘aomigakatteiru’) while a further four stated that such a beard could look ‘aoo toshiteiru’ (typically ‘aoo’) or ‘aooashiku’ (characterized by being ‘aoo’). Nine informants indicated that a beard would need to be thick for ‘ao’ to be applied as an appropriate descriptor, one stating it would need to be black and another stating that it typically would be a beard growing on fair skin. In addition, five informants stated that any newly emerging beard on a freshly shaven face would be typically ‘ao’ in appearance. Three respondents mentioned that fresh beards were always portrayed as being ‘ao’ in comic books (manga) and one other mentioned that the use of ‘ao’ to describe a newly emerging beard would be particularly appropriate for young men whose beards grew vigorously. Finally, one informant simply stated that it was a linguistic tradition to refer to newly emerging beards using the descriptor ‘ao’.

In summary, a majority of informants expressed the opinion that a beard, particularly a new beard, appeared ‘ao’ (or a variation thereof), with support being expressed for the notion that the new growth should typically be thick (or dark) against fair skin and displaying a vigour indicative of health.

Table 7.34 Item no. 33: feeling settled

Total no. of respondents: 49

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Feeling settled	0.00%	0.00%	2.04%	0.00%	97.96%

Comments:

With only one respondent indicating anything other than ‘totally inappropriate’ it is clearly the case that ‘ao’ was widely rejected as a descriptor for this item. The odd-man-out, who circled the neutral no. 3 ranking on the Likert scale, made the comment that ‘one feels peaceful looking at a blue sky or a peaceful lake’. Two other informants, who chose not to record a ranking on the Likert scale, stated that ‘ao’ was a ‘calming, relaxing colour’ or one which represented ‘peace of mind’. These comments support the conclusion drawn in Part 1 of the research that JNS draw a mental association between

‘ao’ and the notion of being ‘restful/mentally settling’ although the lack of quantitative support for this item is baffling.

Table 7.35 Item no. 34: refreshing/zest (‘sawayaka’)

Total no. of respondents: 59

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Refreshing	6.78%	11.86%	5.09%	6.78%	69.49%

Comments:

While a big majority of informants rejected the use of ‘ao’ as a descriptor for this item (76.27%), a variety of reasons was offered by the 18.64% of respondents who deemed it an appropriate descriptor.

Nine informants referred to associations made between ‘ao’ and the sky, with comments like ‘the sky is both ‘ao’ and ‘sawayaka’ [1] and ‘feeling great is exemplified by an ‘ao-zora’ (blue sky)’ [3]. In addition, reference was made to the mental association between zest and 青年 ‘seinen’ (one’s youth) [1] and 青春 ‘seishun’ (the springtime of life) [1]. Four informants stated that, for them, a mental association between ‘ao’ and ‘water’ [1] or ‘a sense of feeling refreshed’ [3] existed. The findings in relation to all the mental associations referred to here accord with the findings listed in relation to Part 1 of the research. Furthermore, three informants pointed out that in advertising ‘ao’ is the colour very often used to depict a sense of being refreshed.

Table 7.36 Item no. 35: peace of mind

Total no. of respondents: 50

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Peace of mind	0.00%	0.00%	0.00%	2.00%	98.00%

Comments:

‘Ao’ was rejected as a descriptor for this concept by all informants, with 49 of the 50 respondents rejecting it outright, and one recording it at no. 4 on the Likert scale. This result does not accord closely with the findings recorded in Part 1 of the research, in which a mental association was identified between the colour term ‘ao’ and the notion of being ‘mentally settling’. No respondent made any written comment as to the reasons for the judgments made in relation to this item.

Table 7.37 Item no. 36: water

Total no. of respondents: 46

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Water	17.39%	17.39%	17.39%	0.00%	47.83%

Comments:

A total of 34.78% of respondents indicated that, to varying degrees, they deemed ‘ao’ to be an appropriate descriptor for this item. Those rejecting it totalled 47.83% of respondents.

The strong associative relationship between ‘ao’ and ‘the sea’, identified in Part 1 of the research, was again evident here, with ten respondents commenting that ‘the sea’ or ‘the deep sea’ was ‘ao’. In addition, two respondents made reference to lakes and a further two to rivers, these results also according with the findings presented in Part 1 of the research.

Two informants commented that ‘ao’ could be deemed a suitable descriptor if a body of water was ‘beautiful’ or ‘clear or unpolluted’, while another suggested that ‘ao’ would be most suitable as a descriptor if the body of water involved were viewed from a

distance. Another informant, who ranked ‘ao’ as a ‘highly appropriate’ descriptor, commented that ‘“ao” is a cold colour’.

Furthermore, two informants stated that bodies of water (the sea, lakes and ponds) appear ‘ao’ while four others commented that water is always depicted as being ‘ao’ in publications.

In summary, the existence of an association between ‘ao’ and water, and between ‘ao’ and ‘the sea’, ‘lakes’ and ‘rivers’, all noted in Part 1 of the research, has been confirmed here. The suggestion that the descriptor ‘ao’ connotes a sense of appeal or beauty, noted in relation to other items in this part of the research, has also been noted in relation to this item, as has the idea that viewing at a distance is a requirement for ‘ao’ to be appropriate.

Table 7.38 Item no. 37: human face/complexion

Total no. of respondents: 51

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Human face/complexion	27.45%	37.26%	9.80%	3.92%	21.57%

Comments:

A clear majority of respondents (64.71%) indicated they deemed ‘ao’ to be an appropriate descriptor for this item, as opposed to 25.49% who indicated otherwise.

Of those who deemed it to be appropriate, the vast majority (18 respondents) made reference to ‘ao’ (or ‘massao’) indicating a poor state of health, with comments like ‘lacking life or energy’, ‘being sick or ill’, ‘being anaemic’, ‘troubled’, ‘run down’, ‘depressed’, ‘shocked’ or ‘having one’s face drained or blood’ being common.

Nine informants made reference to the ‘linguistic tradition’ by which JNS use the expressions 青ざめる ‘ao-zameru’ (to go pale) [2] and 青ざめた顔 ‘ao-zameta kao’ (a face with no colour) [7], while reference was made to the collocational expressions 青い顔 ‘aoi kao’ (an ‘aoi’ face) and 顔が青い ‘kao ga aoi’ (to have an ‘aoi’ face) by two others. In addition, a linguistic binary situation was indicated by two other informants who stated that ‘akai kao’ or ‘kao ga akai’ referred to faces flushed

with blood (perhaps due to running a temperature, strenuous exercise or embarrassment) whereas ‘aoi kao’ or ‘kao ga aoi’ referred to the opposite situation where a face was drained of blood (perhaps due to ill health, shock or worry).

In summary, while a clear majority of informants supported the use of ‘ao’ as a descriptor of the human face, approximately one in four rejected it. All comments recorded in relation to this item concerned the question of poor health, whether the comments were made in direct explication of the meaning of ‘ao(i)’ as it pertains to this item or, alternatively, in the context of collocations and traditional linguistic usages of the term.

Table 7.39 Item no. 38: youths (‘wakamono’)

Total no. of respondents: 49

Referent description	1: highly appropriate	2	3	4	5: totally inappropriate
Youths	10.20%	38.78%	14.29%	6.12%	30.61%

Comments:

While nearly half of all informants (48.98%) deemed ‘ao’ to be an appropriate descriptor for this item, more than a third (36.73%) indicated the opposite opinion. The considerable support for the use of ‘ao’ in relation to this item accords with the findings presented in Part 1 of the research, where a clear mental association between ‘ao’ and ‘youths’ (described alternatively as 若者 ‘wakamono’ (young folk) and 青年 ‘seinen’ ([those of] ‘ao(i)’ years) was identified. In this part of the research a total of 18 respondents indicated that ‘ao’ was suitable as a descriptor for youths because it carried the connotation of their being ‘not fully fledged’, ‘not world wise’, ‘immature’, ‘fresh’, ‘young’, ‘inexperienced’ or ‘naive’. Three of these 18 suggested that, in this regard, youths were like ‘bamboo’, ‘plants’ or ‘young leaves’

(未熟な若者を熟れ切っていない植物となぞらえる).

In addition, three respondents linked their judgment of the appropriateness of ‘ao’ in relation to youths to the phenomenon of もうこはん ‘mokohan’, (the ‘Oriental birthmark’ - the large bluish mark typically found on the buttocks and lower back of Japanese infants and which disappears naturally after a few months), suggesting that for youths the ‘mokohan’ was still in place.

One respondent simply stated that there is a linguistic tradition by which youths are described as being ‘ao’ while six respondents made reference to the collocations 青年 ‘seinen’ ([those of] ‘ao(i)’ years) [1], 青春 ‘seishun’ (the springtime of one’s life) [1] and 青二才 ‘ao-nisai’ (literally, ‘an “ao” two year old’, that is to say, someone who is still wet behind the ears) [4].

In summary, evidence is presented in relation to this item which indicates that collocational factors may well have influenced informants’ judgments in terms of the appropriateness of ‘ao’ as a descriptor. It is very clear that the vast majority of informants who deem ‘ao’ to be appropriate draw a close association between the term ‘ao’ and being young, inexperienced, naive or otherwise ‘not fully fledged’.

Summary of Chapter 7

This chapter reports on the degree of appropriateness JNS deem ‘ao’ to have as a descriptor for the 38 items which comprise the elicitation instrument used in Part 3 of the research. This elicitation instrument was informed by the results delivered in Parts 1 and 2 of the research. In addition, the reasons offered by the JNS informants for their judgments in this regard were recorded and analyzed.

For many items there was a noticeable lack of universal agreement amongst informants as to the appropriateness of using ‘ao’ as a descriptor. In the case of ‘eyes’, for example, one in three informants indicated they felt ‘ao’ was highly appropriate as a descriptor while at the same time one in four indicated they felt it was totally inappropriate (with one in five informants voting ‘neutral’). For ‘apples’ the figures were one in five and one in four (with a proportion of informants greater than either of these figures voting ‘neutral’). This division of opinion was noticeable for several other items also. In the case of ‘mould’, for example, one in five deemed ‘ao’ to be highly appropriate while the same number of informants deemed it ‘totally inappropriate’. For ‘lawns’ the figures were one in four and one in three respectively while for mountains approximately 45% of informants deemed ‘ao’ a suitable descriptor with an equal number deeming it unsuitable. For ‘youths’ the figures were one in two and one in three. For the item ‘leaves’ the division of opinion was somewhat less stark, with approximately 60% supporting its use as a descriptor and 2% deeming it inappropriate. For ‘the sky’, on the other hand, there was universal agreement that ‘ao’ was an appropriate descriptor while for ‘the sea’ the agreement was nearly universal.

For several items researched informants indicated they felt the colour of the item, as such, was 'midori', but that 'ao' was nonetheless suitable as a descriptor (e.g. Item no. 4, 'frog'). For certain other items it was evident that individually the items in question would be described as 'midori', but when presented en masse 'ao' would be appropriate (e.g. leaves, green grapes, trees, rice plants). For many items the condition was laid down that an expansive area needed to be involved for 'ao' to be appropriate (e.g. grassy plains, lawns) and that small areas would be 'midori'.

A lack of universal agreement was also evident in terms of whether 'ao' referred to a dark green or a light green when reference is made to foliage. For 'mountains' most informants indicated that if the descriptor 'ao' were used reference would be to a dark green. The opinion was also voiced, however, that the appropriate time for this descriptor to be used would be before the mountain turned a dark green colour. For the item 'leaves' there was approximately equal support from informants for the opinion that 'ao' was a dark, healthy colour as for the idea that it referred to a profusion of new verdure (fresh, healthy buds and leaves on young trees). It was noted for the item 'Christmas trees' also that while some informants suggested 'ao' would be an appropriate descriptor for the dark green of mature foliage, others suggested the light green of budding foliage. In other words, evidence is presented which indicates that there is not universal agreement amongst informants as to just whether a light or a dark green hue should be described using 'ao'. Divided opinion was noted in relation to the beefsteak 'shiso' plant also, with some informants indicating they understood 'ao' to refer to a strong 'midori' while others suggested 'waka kusa-iro' or the colour of new, young grass. Disagreement amongst informants was further evident in relation to the item 'wakame' (unprocessed edible seaweed), with the diametrically opposed arguments that "'ao" refers to wet seaweed' and "'ao" refers to dry seaweed' being voiced. Accordingly I conclude that certain aspects of the 'ao' schema are not universally shared by JNS.

The evidence presented in this chapter also indicates that 'ao' can activate more than one cultural schema at a time. For example, for grapes it can mean 'fresh and healthy', 'appetizing' or 'unripe', while for 'wakame' (unprocessed edible seaweed) and 'nori' (processed edible seaweed) it can mean both 'young and fresh' and 'appetizing'.

For certain referents, such as 'bruise', it is evident that the descriptor 'ao' is used denotatively by some informants while by others it is used to indicate 'freshness', that is to say a bruise which has newly appeared and which is painful.

The uncertainty evident in the case of 'traffic signals' perhaps could be explained by the reality, explained earlier in the thesis, of there being both older signals which are a clear green and newer ones which are distinctly bluish currently in use in Japan

For abstract notions this chapter delivers a general confirmation of the support recorded in the word association exercise for the use of 'ao' as a descriptor (e.g. for 'coldness', 'freshness' and 'one's youth'). The exceptions to this situation were items no. 30 ('feeling depressed'), 33 ('feeling settled') and 35 ('peace of mind'). For these items the mental association with 'ao' noted in Part 1 of the research was not corroborated in Part 3.

The notion that 'ao' can describe a human face which reflects poor health and a lack of vigour, one which is drained of blood, was confirmed by the responses of informants reported in this chapter. Evidence is also provided in this chapter which indicates that 'ao', when used to describe a newly shaven face, refers to the situation of there being healthy and vigorous growth of a dark beard.

CHAPTER 8

Conclusions

Overview of the Dissertation

This dissertation has investigated the semantic area occupied by the Japanese colour term ‘ao’, identifying it as one of the four oldest colour terms in that language and indicating that its contemporary connotational usage reflects the original non-green/blue-differentiating term ‘grue’. The mental associations JNS make with this term (and the related native term ‘midori’ and loanwords ‘buruu’ and ‘guriin’) were investigated in Chapter 5, while in Chapter 6 the empirical usage of ‘ao’ as a descriptor was investigated both in decontextualized situations (as colour samples *per se*, i.e. its denotational usage) and contextualized situations (as a component of a picture, i.e. allowing for both denotational and connotational usages). In Chapter 7 the JNS perception of the level of appropriateness of ‘ao’ as a descriptor for a variety of items was investigated, along with the bases for the judgments made in this regard.

Response to the Research Questions

Part 1. The word association test

How does ‘ao’ interact with its ‘rival’ colour expressions, ‘buruu’, ‘guriin’ and ‘midori’, in terms of the mental associations made by JNS?

It is clear from the results of the mental association exercise that considerable ‘cross-over’ exists in the cognitive schemas which JNS employ in relation to the four colour terms ‘ao’, ‘midori’, ‘buruu’ and ‘guriin’. The many and complex areas of shared term usage are identified, thus pointing to the existence of overlapping patterns (and blockages on these) which operate cognitively and which act to determine the JNS choice of descriptor. While the analysis of the mental association questionnaire results makes it possible to identify the existence of certain combinational patterns (which I have referred to as ‘colour term partnerships’), it also indicates that some referents fall within the exclusive domain of a single colour term. Moreover, it is revealed that each of the terms ‘ao’, ‘buruu’, ‘guriin’ and ‘midori’ has a metaphorical aspect and that there

is variance between the connotations carried by the foreign loanwords ‘buruu’ and ‘guriin’ in their source (English) and host (Japanese) languages. ‘Buruu’, for example, can be used to carry the meaning ‘sadness/loneliness’, as per English, the donor language. ‘Guriin’, by contrast, cannot be used to carry the meaning ‘inexperienced/callow’.

In terms of the onomasiological perspective (i.e. what colour terms can be used to describe a given item), it is reported that there is often not only a very considerable overlapping of applicable colour terms, but also considerable variance in descriptor choice between individual JNS. From a semasiological perspective (i.e. what a given colour term can be used to refer to) it is shown that each of the colour terms under investigation covers a wide range of referents. In the case of ‘ao’, for example, there are both concrete (‘the sky’, ‘the sea’, ‘traffic lights’, ‘water’ etc) and abstract (‘bracing/invigorating/freshness’, ‘beautiful/pretty’, ‘restful/mentally settling’, ‘cold’) referents.

Evidence is provided which indicates that the semantic boundary of ‘ao’ allows for the inclusion of exemplars which do not have any obvious, common attributes. In other words, ‘ao’ acts as the domain against which expressions such as ‘ao-mushi’ (green caterpillar) and ‘sei-shun’ (youth) are understood. It is suggested that these items, together with others such as ‘ao-ba’ (green leaves) and ‘aoi-umi’ (blue sea), each extract their meaning by highlighting a particular configuration in the ‘ao’ domain and that, for JNS, different referents stimulate different aspects of the ‘ao’ schema. In other words, JNS appear to understand ‘ao’ in the context of ‘ao-zora’ (the blue sky) independently of their acceptance and understanding of it in other expressions such as ‘ao-shingo’ (‘ao’ traffic light) and ‘ao-ringo’ (green apple).

What are the prototypical exemplars of each of these colour terms and the range of referents with which each of these terms allows mental associations to be drawn?

The sky and the sea are established as prototypes of both ‘ao’ and the loanword ‘buruu’

There was broad agreement amongst respondents that the sky (‘sora’) and the sea (‘umi’) were considered representative of the colour ‘ao’ by JNS. Hence these referents were identified as ‘ao’ prototypes (despite the fact that they are very often observed to fail to display prototypical hues).

'Traffic lights' were identified as being the third most popular item associated with the term 'ao'. For the expression 'buruu', also, 'the sky' and 'the sea' were identified as being prototypes, while 'feeling down' was the third best example of a mental association made with this term. The prototypical exemplars of the term 'guriin' were identified as being 'forests', 'lawns', 'trees', 'leaves' 'nature' and 'traffic lights'. For 'midori' the prototype was identified as being 'forests'.

The research indicates that, while considerable overlapping exists in terms of the mental associations JNS make with each of the colour terms being investigated, there are also associations drawn for each of the four colour terms which are peculiar to the colour term in question. In other words, certain referents were found to fall within the exclusive domain of a particular colour term. For example, losing the colour from one's cheeks or being unwell were only ever associated with 'ao', while sadness or loneliness were only ever associated with 'buruu'. Similarly the concept of peace was only associated with the expression 'guriin', while 'midori' was the only term to be associated with a proper noun (a girl's name).

Part 2a. The oral descriptions of decontextualized colour samples

Do contemporary JNS clearly distinguish between the use of 'ao' and 'midori' to describe blue and green respectively?

This research indicates that a fairly clear distinction is generally made between 'ao' and 'midori', particularly in denotative terms, with 'ao' aligning itself closely with English 'blue' and 'midori' with English 'green'. The large number of responses categorized as 'other' when informants used the language empirically to describe decontextualized colour samples suggests that JNS see colours which are 'in between' blue and green as being neither clearly 'ao' nor clearly 'midori' (descriptions such as 'ao-midori' and 'midori-ao' were commonly recorded in such situations). This result accords with the findings of Stanlaw, who claims that 'ao' and 'midori' are clearly distinguished by JNS.

Stanlaw (1987, p.400) states that 'at this stage in the development of the Japanese language it is no longer in the process of dividing colour categories, at least with respect to the first eleven basic colour terms'. In other words, 'ao' is considered by most modern Japanese to be the equivalent of English 'blue'. This situation is paralleled in research into the Korean language conducted by Tyson (1994, p. 299), who states that '...the term that originally referred to Grue has come to refer to BLUE for most of my consultants'. Given that 'ao' is considered by most JNS to refer to

'blue', it is reasonable to draw the conclusion that the use of 'ao' as a descriptor for certain green-coloured things represents the remnants of the former semantic boundaries of 'ao', that is to say, the 'grue' category in Japanese. Evidence presented in this thesis, however, also points to the more or less general acceptance of 'ao' as a descriptor for certain non-denotational aspects of the 'ao' schema (e.g. youthfulness, immaturity, freshness, having appeal).

The research indicates that older informants, that is to say, people in their 60s, 70s and 80s, tended to use broader ranges of colour vocabulary than their younger compatriots. The traditional '-iro' ('-coloured') expressions were virtually the exclusive domain of the more senior informants. The foreign loanwords 'buruu' and 'guriin' also were shown to be more commonly used by older informants (people who were in single figures, their teens or twenties at the time of the post World War II U.S. occupation, when the impact of the American cultural influence on Japanese society was most immediate and direct) than by younger ones. In contrast to their younger countrymen, elderly informants demonstrated the practice of readily using the foreign loanwords 'buruu' and 'guriin' denotatively. Younger informants, on the other hand, drew a clear distinction between blue and green simply by using the terms 'ao' and 'midori'.

For all informants colour samples which were clearly blue tended to be described as 'ao' and colour samples which were clearly green tended to be described using 'midori', with no significant confusion between the use of these terms being evident.

Is there evidence of the continuation of the traditional dominance of 'ao' over 'midori' described in the literature?

The traditional dominance of 'ao' over 'midori' described in the literature was not evident in the description of the decontextualized colour samples described in this study. In-between or indistinct green/blue hues were described as such in virtually all cases, informants drawing on the myriad of possibilities the Japanese language offers in terms of colour term morphological variations on the terms 'ao' and 'midori', as well as employing other colour term possibilities (noun + the '-iro' suffix and loanwords).

Whilst this research suggests that there is a generally accepted partial retention of the composite blue-green category 'ao' in modern day Japanese at the linguistic (empirical) level, its retention at a cognitive (denotative) level is shown to be far less pronounced.

Part 2b. The oral descriptions of contextualized colour samples

How is 'ao' used empirically?

While the data suggest that certain things that are green can, under certain circumstances, be described using 'ao', it is evident that things which are blue cannot be described using 'midori'. The data suggest that 'ao' generally can be used to describe green things only if they have life (a notable exception, however, is traffic lights). Green flags, T shirts and coils of rope cannot be described using 'ao'. 'Ao' can be used to describe humans, animals and plants, with a variety of associative meanings. For non-living things generally it is only the denotational aspect of 'ao' which is drawn upon.

The data provide clear evidence which indicates that 'ao' has a wide level of application, being used by someone for every contextualized image except images nos. 47 (T shirt, LHS), 49 (the 'Ao-daisho' snake), 60 (rope, LHS) and 64 (Italian flag). With the exception of Image No. 49 (which must be considered exceptional as, despite its name, it is neither green nor blue) all these images are of non-living green things. The data also provide evidence which indicates that the use of 'ao' as a descriptor for green things is not restricted to items which could be considered of traditional significance to the Japanese in a cultural sense (kiwi fruit, for example, were described using 'ao').

The data strongly suggest that, under certain circumstances, the use of 'ao(i)'/ 'aoao toshiteiru' as a descriptor for certain things which are green is widely accepted by JNS. The oral picture descriptions provided by informants indicate that the use of 'ao' as a descriptor for such referents commands widespread, although never universal, support. The tendency is for such use to be idiosyncratic (speaker dependent) and independent of gender or age.

The empirical usages of 'ao' recorded also provide evidence which indicates that JNS can be remarkably flexible in terms of colour term usage. Image No. 42, the 'ao-mushi' ('ao' caterpillar), for example, was observed to be described as being 'ao' or 'midori' by different informants. In addition, an element of idiosyncratic language use or 'fluidity of colour term usage' was observed, certain informants using different terms as descriptors for a given item on different occasions. Furthermore, evidence is provided which indicates that this 'fluidity of colour term usage' allows native terms and loanword terms to be mixed together in numerous combinations without any apparent sense of awkwardness. The image of cheese (Image No. 31), for example, was described by one informant using both the terms 'guriin' and 'buruu' and by another

using 'buruu', 'midori' and 'sora-iro' ('blue' [literally 'sky-coloured']). Yet another informant used a combination of the terms 'buruu' and 'aoi' while a fourth informant pressed the three expressions 'buruu', 'aoi' and 'mizu-iro' ('blue' [literally 'water-coloured']) into service as descriptors.

It was also noted from the oral descriptions of contextualized colour samples recorded that a referent can be described using a colour term although it doesn't generally awaken the cognitive schema associated with that colour term (e.g. human eyes can be described as being 'midori' in response to an appropriate picture). This finding seems to run contrary to certain conclusions arrived at as a result of Part 1 of the research (the word association exercise) which suggested that human eyes could be described as 'ao', 'buruu' or 'guriin' but not 'midori', but indicates that the means of elicitation (reliance on a mental prototype vs. judgment based on an example) can be significant in determining responses. No equivalent situation was observed in relation to the term 'ao', its more complex nature and broader application allowing each of the various aspects of its cognitive schema to be awakened, depending on the referent in question.

The use of 'ao' to describe scenes such as a verdant rice field ('aoaotoshita suiden') was referred to by several informants as indicating a level of sophistication, the likes of which would typically be considered appropriate in a formal setting such as that provided by an educational institution or a literary context (in poems or books).

For certain images some informants indicated they were quite unsure as to what would constitute an appropriate description. Generally speaking the phenomenon of expressing an inability to describe a given image was the province of the older informant (50+). A more general element of confusion and uncertainty was noticeable, however, in relation to the question of what constitutes an appropriate descriptor for the green traffic lights (Images Nos 30 and 61). These images were the only ones of non-naturally occurring things for which a clear cut usage of colour term descriptors was not evident. Other than for traffic lights, 'ao' was observed to be universally rejected as a descriptor for non-naturally occurring green referents.

The research indicates that in Japan employing the term 'ao' as a descriptor for the 'proceed' traffic light is a practice which enjoys general acceptance, with numerous respondents indicating that they learned this expression at an early age and that it is taught to all from childhood. Accordingly, they claim, they accept and have internalized its usage, interpreting this as an aspect of cultural knowledge. The research did not

identify a single informant who suggested that 'ao' was unacceptable as a descriptor for the 'proceed' traffic light, although some stated that 'in fact the colour is "midori" but "ao" is the accepted term'. These findings support the position taken by Nishikawa (1975, p.92) who acknowledges that some JNS think of the 'ao' traffic light as being 'green'.

Is the use of the colour descriptor contextually dependent?

The evidence provided by the data in Parts 2b(i) and 2b(ii) of the research clearly indicates a very high level of referent dependency in terms of the suitability and empirical choice of 'ao' as a descriptor. Indeed, for certain referents massive shifts are witnessed in the choice of colour descriptor depending on whether the colour being described is presented in a contextualized or a decontextualized environment. The high level of contextual dependency relating to the semantic boundary of 'ao' accords with the findings of Labov (1973) in relation to the categorization of an entity depending on the context in which it is presented. The semantic boundaries of 'ao' are clearly prone to shifting as contexts change. For example, Image No. 1, a colour sample taken from the bottom left hand corner of Image No. 40, prompts considerably different appellations when described in isolation (Image No. 1: 24.44% 'ao' responses), in contrast with a clear blue (Image No. 7: 2.17% 'ao' responses), in contrast with a clear green (Image No. 15: 36.00% 'ao' responses) and in context as part of the ocean near the seabed (Image No. 40: 14.04% 'ao' responses). Similarly, the colour presented contextualized as a section of the 'go' traffic signal (Image No. 30: 66.04% 'ao' responses) is presented in isolation (Image No. 20: 60.87% 'ao' responses), with the green from the green apple (Image No. 17: 75.56% 'ao' responses), with a deep azure blue of the sky (Image No. 24: 25.93% 'ao' responses) and with a bright green from the leaves of rice plants (Image No. 28: 68.09.0% 'ao' responses), with a variety of colour labels being used to describe it.

This research indicates that there are contextualized examples of the formal use of 'ao' to describe green things which JNS find inexplicable. An example of the usage of 'ao' which was generally considered 'wakega wakaranai' (inexplicable) by JNS as a descriptor for something green is the 'ao' head of the Mallard duck. Not a single informant described this as 'ao' when shown a picture of Mallard ducks (Image No. 36) in Part 2b(i) of the research. Similarly there were no informants who indicated they thought 'ao' was employable as a descriptor for this item in Part 2b(ii) of the research. Despite this, the term 'ao' is conventionally used as a formal descriptor. Although the

accepted name for this species of duck is the “‘ao”-headed duck’, the term ‘ao’ is not conventionally employed as a descriptor for this item by JNS and indeed is universally deemed inappropriate as a descriptor. The descriptor ‘ao’ would appear to be accepted only within the context of naming the bird.

Part 3. Questionnaire

How appropriate do JNS perceive ‘ao’ to be as a descriptor for a variety of given referents?

The data suggest that ‘ao’ is generally considered more appropriate as a denotational reference (e.g. as a descriptor for blue things such as the sky or the sea) than it is when used to express associative or connotative meanings (e.g. as a descriptor for green things such as rice paddies or lawns). This is shown to be true irrespective of age or gender. In other words, informants ranked the level of appropriateness of ‘ao’ most highly when the reference was interpreted as being to the colour denotation as opposed to situations where the reference was to a form of associative meaning. Numerous informants reported that veins and bruises can be described as being ‘ao’ if they appear ‘ao’ (understood to mean ‘blue’ by informants) as can the newly shaven faces of men with thick facial hair. Some informants state that ‘ao-kabi’ (‘ao’ mould) is also ‘ao’ in appearance. Examples where the reference is to a form of associative meaning are also numerous. In the case of describing a face or complexion the connotation is of ‘being shocked or ill, the blood drawn from the cheeks’. When describing water an association is drawn with the prototypical colour of the sky and in reference to young people the reflected meaning is delivered through the sense of the word as applied to new foliage, that is to say ‘immature and underexposed to the world [i.e. inexperienced], though healthy, young and vigorous’. For such referents the proportion of informants who indicate they regard ‘ao’ as being an appropriate descriptor is much smaller than is the case for ‘the sky’ or ‘the sea’. The Likert scale incorporated into the questionnaire indicated that denotational (particularly prototypical) usages of ‘ao(i)’ are considered to be more appropriate than associative (particularly collocative) usages, with certain denotational referents being considered more authentically ‘ao’ than others. As mentioned already, the sky and the sea are referents for which ‘ao(i)’ is used denotationally and which consistently scored highly on the appropriateness scale by informants. Aoyama, Aoki and Aomori, on the other hand, are collocative expressions which did not awaken the ‘ao’ cognitive schema for any informants.

There is evidence of an acceptance of the associative meanings of 'ao' in relation to living things [humans, animals and plants], however, which reached across the gender and age categories of informants. Generally (although not universally) informants differentiated the colour of the images of green living things shown to them from associative usages of 'ao' to describe those same things. Informants almost universally demonstrated the ability to clearly differentiate 'midori' and 'ao' when these terms were used denotatively, while at the same time accepting the associative (connotative or collocative) aspects of the usage of 'ao'. A typical response to the image of the green caterpillar (Image No. 42), for example, was 'the colour is "midori" but we call it "ao"'. For the pictures of animals, informants were generally unable to offer any explanation as to why 'ao' was used as a descriptor. For the pictures of moss (Image No. 39), rice plants (Image No. 33), lawn (Image No. 32), sasa grass (Image No. 27) and bamboo (Image No. 35) the colours involved were variously described as being 'midori' (green), 'ki-midori' (yellow-green), 'midori iro' (green coloured) or 'fuka midori' (dark green). Notwithstanding, 'ao' was often used and accepted as a valid descriptor separate from the denotative usage.

Whereas for 'the sky' there was universal agreement that 'ao' was an appropriate descriptor, for many items presented in the elicitation instrument there was a noticeable lack of universal agreement amongst informants as to the appropriateness of using 'ao' as a descriptor. This same lack of universal agreement was also evident in terms of whether 'ao' referred to a dark green or a light green when reference was made to foliage. While most informants indicated that if the descriptor 'ao' were used reference would be to the dark green of such things as leaves (or trees or mountains covered in foliage), others suggested that the lighter colour of new verdure is what in fact the term would refer to. Accordingly I conclude that this is an aspect of the 'ao' schema which is open to individual interpretation and for which there is no universally shared cultural interpretation.

Evidence is also presented which indicates that 'ao' can activate more than one cultural schema at a time. Some informants, for example, commented that an 'aoi ringo' could be an appetizing, mature green apple or alternatively an unripe red apple. The perceived level of appropriateness of 'ao' as a descriptor is, therefore, not only referent dependent but also dependent of the aspect of the 'ao' cultural schema being activated.

The uncertainty evident in the case of considering the level of appropriateness of 'ao' as a descriptor for 'traffic signals' perhaps could be explained by the reality,

described earlier in the thesis, of there being both older signals which are a clear green and newer ones which are distinctly bluish currently in use in Japan.

What is the basis upon which JNS make such judgments?

An analysis of the oral and written comments (made in Parts 2 and 3 of the research respectively) made by informants has allowed the identification of 11, sometimes overlapping, linguistic and socio-cultural domains which combine to determine the parameters agreed upon by JNS in terms of the use of ‘ao’ to refer to things which are green in colour. These I have categorized according to the following headings:

1. The unripe/inexperienced or expectant colour change semantic domain
2. The luxuriant foliage and freshness semantic domain
3. The healthy growth and appetizing semantic domain
4. The expanse semantic domain
5. The aesthetic semantic domain
6. The wetness semantic domain
7. The poetic semantic domain
8. The linguistic binary semantic domain
9. The collocation semantic domain
10. The established linguistic tradition semantic domain
11. The ease of linguistic reference semantic domain

1. The unripe/inexperienced or expectant colour change semantic domain

For certain referents ‘ao’ has been consistently used to express the notion of being unripe, not ready for harvesting or consumption, or awaiting a colour change or maturity.

This was evident in both literal and metaphorical senses in relation to such referents as the tomato, apple, grapes, bananas, traffic lights and youths. In the case of bananas the comment was often made by informants that ‘although the colour of the unripe banana is “midori” we can’t say ‘it’s still “midori”’. We have to say ‘it’s still “ao”, that is to say it is unripe and hasn’t changed colour yet’. Similar comments were made in relation to tomatoes, with reference being made to a children’s song called ‘The Tomato’ which contains the lines ‘chiisai toki wa aoi fuku, okikunattara aoi fuku’

(‘when it’s still small it wears its “aoi” clothes, but when it grows up it wears its “akai” (red) clothes’). The notion of an expectant colour change was strongly evident in comments made by numerous informants. For this reason I have included traffic lights in this category. By extension, youths are thought of as being ‘green’ to start out with before maturing.

2. The luxuriant foliage and freshness semantic domain

It is clear from the data that the attribute of having plenty of fresh foliage which is a dark (strong) green colour and which represents healthy, vigorous and lush growth is part of the ‘ao’ cognitive schema for JNS. Evidence of this has been provided in relation to the following referents: ‘wakame’ edible seaweed, bamboo, trees, mountains, forests, vegetables (leafy species, typically spinach, bok choy and choy sum), leaves, lawns, the beefsteak plant, rice fields and grassy plains. For all of these referents a requirement was that there be a profusion of young, healthy and fresh leaves. Several informants linked this notion with the seasons of spring and summer.

3. The healthy growth and appetizing semantic domain

In this category reference was not essentially to foliage. Referents to fall within this category were ‘wakame’ edible seaweed, capsicums, chillies, bamboo, the beefsteak plant, grapes (unblemished) and processed edible ‘nori’ seaweed. The inclusion of the descriptor ‘ao’ connotes a sense of the referent being appetizing by dint of its healthy appearance.

4. The expanse semantic domain

For referents included in this category a common comment made by informants was to the effect that ‘if only a small area or quantity is being described then “midori” would be the appropriate descriptor’. Viewing from a distance was also mentioned by many informants as a condition of ‘ao’ being considered applicable. Several informants suggested, for example, that individual rice plants are ‘midori’ whereas the overall impression created by viewing a healthily growing field of rice is captured by the expression ‘ao’. Only when viewed *en masse* would ‘ao’ be appropriate. For other items also, such as leaves, it was evident that when described individually the only acceptable expression would be ‘midori’, but when presented *en masse* ‘ao’ was deemed an appropriate descriptor. In a similar vein, the data reveal that in some circumstances (such as when describing beds of moss) an expansive area needed to be involved for ‘ao’ to be deemed appropriate and that small areas would be ‘midori’. Green apples,

however, are a notable exception to this generalization, their being described as ‘ao-
ringo’ whether presented individually or *en masse*.

Referents to which this semantic domain applies are: leaves, trees (covered in greenery which blocks the sight of the branches), Christmas trees growing in the mountains, grapes, mountains (covered in greenery), lawns, the sea, grassy plains (when viewed from a distance, not when viewed from the plain itself), bamboo groves, moss, rice fields, remote forests and bodies of water (such as lakes, rivers or the sea, but not water in a cup).

5. The aesthetic semantic domain

The items which may be considered to fall into this category are ones which impart an intrinsic sense of beauty or appeal to the observer. The reference need not be denotative, but for all referents there is a sense of the observer enjoying the experience of observing. Referents included in this category are: grassy plains or fields (‘when in the sunlight’ being a condition stipulated by some informants), mountains which are covered in a mantle of green, leaves (one informant adding that “‘ao” is the most beautiful “midori””), bamboo groves, forests, the sea, lakes and rivers, trees which hold natural appeal by virtue of their reflecting the glory of nature, Christmas trees when viewed at a distance in the mountains and moss in the rainy season when it displays its full glory. There was an ill-defined sense of pleasing beauty associated with the duck’s (Mallard’s) head which allowed its incorporation into this category. This was also the case with the descriptions offered in relation to the image of the green python.

Certainly the sky falls into this category; the comment being made by several informants that when the sky is ‘ao’ a sense of well-being is imparted.

Nishikawa (1975, p 120-136) reports that ‘ao’ is universally thought of as being an appealing colour by JNS, regardless of age or gender. He reports that when asked to list their favourite colours the three age categories identified in his study ([a] children/adolescents, [b] young and middle-aged adults and [c] the elderly) were in unanimous agreement in placing ‘ao’ at the top of the list of the six colour terms offered for consideration.

6. The wetness semantic domain

The data suggest that items in this category are items which are intrinsically wet, such as turtles, frogs, seaweed and moss (when moist and growing in the shade).

7. The poetic semantic domain

The use of 'ao' to describe leaves and mountain ranges is considered by most informants to be a special usage reserved for literary effect. Several informants suggested that one would typically expect to encounter such usages in the titles of films or books, or in poetry.

For several items included in the elicitation instrument informants indicated they felt the colour of the item, as such, was 'midori', but that 'ao' was nonetheless suitable as a descriptor. This could have been for any of several reasons (or combinations thereof), such as poetic licence, as in the case of 'aoi-sanmyaku' (a beautiful mountain range clothed in green), collocation, as in the case of 'ao-gaeru' (a green tree frog), or the existence of linguistic binary situations, such as in the case of 'aka-ringo' (red apples) vs 'aoi-ringo' (green apples).

8. The linguistic binary semantic domain

It would appear from the information supplied by research participants that JNS sometimes set up what I shall refer to as 'a relationship of antagonism' between the colour terms 'ao' and 'aka' (red). By this I mean that there is often a sense that if things are not 'ao' then they are 'aka'. These are used as binary category labels and they represent two of the oldest four colour terms in the Japanese language (the other two being 'shiro' [white] and 'kuro' [black]). For certain referents 'aka' can be considered to refer to what is common, usual or expected as opposed to 'ao' which refers to what is uncommon, unusual or unexpected (e.g. apples are always presumed by JNS to be red). For other referents the reverse is the case (e.g. leaves), and for yet others both terms are used to describe abnormal situations which are uncommon, unusual or unexpected (e.g. the human face, 'aka' referring to a flushed face, 'ao' referring to a face drained of blood).

For JNS the culturally bound cognitive schema involving apples ('ringo') dictates that their colour should be 'aka' (red). 'Ringo' are thought to be red, and the adjectival prefix 'aka(i)' generally deemed superfluous. 'Ringo' which are not 'aka' are considered to be 'ao' - hence green apples (Granny Smith apples) are 'ao-ringo'. Similarly, because for JNS prototypical chillies are red, they are usually referred to simply as 'togarashi', but can be described as 'aka-togarashi' to differentiate them from the green chillies which are known as 'ao-togarashi'.

In the case of cabbages ('kyabetsu'), capsicums ('piiman') and the beefsteak plant ('shiso') a green colour is the norm, so unless differentiation is being made between the usual green varieties of these vegetables and varieties of other colours, informants suggest there is no need to use the prefix 'ao' and describe them as 'ao-kyabetsu', 'ao-piiman' or 'ao-jiso'. Red capsicums and purple cabbages and beefsteak plant leaves, on the other hand, are referred to as 'aka-piiiman', 'aka-kyabetsu' and 'aka-jiso' respectively.

The complexion of the Japanese face is usually fair, tawny or dark brown. One is described as having a face ('kao') which is 'akai' when one is flushed due to heat, embarrassment or the like. In such cases 'akai kao' (a red face) or 'kao ga akai' (his face is red) would be appropriate expressions. The Japanese equivalent of 'to blush' is 'sekimen suru', where 'seki' is the 'onyomi' of the character read as 'aka' and 'men' is the 'onyomi' of a character meaning face. When a person's face is drained of blood, however, such as when he is in shock or 'off colour' due to sickness, he is described as having an 'aoi kao' (an 'aoi' face), or by the expression 'aoi kao wo shiteiru' (having a face/complexion which is 'aoi'). Neither 'aka' nor 'ao' is employed as the descriptor for the normal facial complexion.

Other referents for which the 'aka/ao' binary situation was evident were grapes ('akai-budo' vs 'aoi-budo'), frogs ('ao-gaeru' vs 'aka-gaeru') and traffic lights ('ao-shingo' vs 'aka-shingo').

9. The collocation semantic domain

Varying levels of the influence of collocational factors in descriptor choice are evident in the research. Comments by informants suggest, for example, that collocational factors were very greatly influential in relation to descriptor choice in the case of Image No. 18 (peas), considerably influential in the cases of Image No. 27 (frog), possibly of only marginal influence in the case of Image No. 36 (ducks) and of no influence at all in relation to Image No. 49 ('Ao-daisho' snake).

It is evident from the responses of informants that some expressions lend themselves more readily to the incorporation of 'ao' into the description. (e.g. 'ao-ningo') than others. Indeed for some expressions 'ao' is hardly ever encountered e.g. 'ao-endo' was never encountered as a descriptor for peas - 'guriin piisu' being the expression favoured by the majority of informants.

Many informants drew attention to collocations in the form of other proper nouns such as: ‘ao-jiso’ (‘ao’ beefsteak plant) and ‘ao-dake’ (‘ao’ bamboo), often describing these things as being ‘ao’ in the sense of being young or fresh. Other informants suggested that the denotative sense of ‘ao’ was being applied in such cases. In the case of ‘ao-aza’ (an ‘ao’ bruise), the newly shaven face of a man whose beard grows thickly, the sky, the sea and blood vessels, most informants indicated that it was the denotative sense of ‘ao’ which was being applied (‘We call it “ao” because it is “ao” in colour’).

The data clearly indicate that Aoki, Aomori and Aoyama are simply unquestioningly accepted as surnames or place names, the term ‘ao’ being thought of as playing nothing more than a prefixing role in the nomenclature. Indeed no informants described trees (‘ki’), forests (‘mori’) or mountains (‘yama’) as being ‘ao’ or ‘aoi’, yet all accept and use ‘Aoki’ (‘ao’ tree) as a surname, ‘Aomori’ (‘ao’ forest) as the name of a prefecture in northern Honshu (the main island) as well as the name of the capital city of that prefecture and ‘Aoyama’ (‘ao’ mountain) as both a surname and the name of a major traffic artery in the metropolis of Tokyo as well as the name of a suburb in Tokyo. The research suggests similarly that other proper nouns, such as ‘Aobadai’ (‘Green Leaf Heights’ - a suburb of Tokyo) and ‘Aobajo’ (the ‘Castle of the Ao Leaves’) are never considered to carry either denotational nor connotational meanings, the reference to ‘ao’ simply being accepted as an integral part of proper noun in question.

10. The established linguistic tradition semantic domain

‘Ao-kabi’ (‘ao’ mould) is a proper noun, and some respondents reported that they refer to it as being ‘ao’ because ‘that’s what its name tells us it is’ or ‘that’s what it’s called’. Further evidence of the relationship between the name and the direction of cognition can be found in the comment: ‘Koke (moss) is “midori-iro” - we don’t say “ao-goke” much’. In this case because the informant in question felt the expression ‘ao-goke’ (‘ao’ moss) was not common he stated that ‘koke’ was ‘midori’ in colour, rather than ‘ao’.

The research indicates that JNS are typically unsure about the role played by ‘ao’ (and hence the suitability of its use) in the proper nouns ‘ao-umigame’ (green sea turtle), ‘ao-daisho’ (native snake), ‘ao-mushi’ (green caterpillar), ‘ao-gaeru’ (green frog) and ‘ao-shingo’ (green traffic light). Some JNS offered comments suggesting that because such usages were customary (that is to say they were widely used and

understood, with no adverse bearing on communicability) the aspect of the ‘ao’ schema operating in these situations was something which did not need to be explicable.

In regards to the question of established linguistic tradition, certain informants indicated that for certain green referents the pre-nominal use of ‘ao(i)’ is accepted without ‘iwakan’ or a sense of awkwardness. This is particularly the case for collocations. However it is sometimes considered strange to use ‘ao(i)’ in the predicate when the referent isn’t blue in colour. The expression ‘koke wa aoi desu’ ([the] moss is ‘aoi’), for example, would immediately meet with a sense of awkwardness, and be rejected by some JNS, whereas ‘ao’ or ‘aoi’ used pre-nominally (‘aoi koke’ or ‘aogoke’) would be accepted as normal usages. The post-nominal (predicative) use is rendered more readily acceptable when the noun being described (in this case ‘koke’, or moss) is prefaced with a defining expression such as ‘ko no...’ (‘this...’) or ‘kyo no ...’ (‘today’s ...’), thereby restricting the reference. Informants reported that the expression ‘koke wa aoi desu’ gives the impression that a general statement is being made in reference to all ‘koke’ (‘moss is “aoi”’), thus invoking the denotational sense of the term ‘aoi’ and rendering the expression questionable to many JNS.

Similarly, while the adjectival expression ‘aoao toshiteiru’ (or its past tense ‘aoao toshita’), which means ‘displays the characteristics of ‘ao’ very clearly’, can be used pre-nominally or post-nominally for appropriate living things which are green (typically such things as carpets of damp moss, fields of young rice plants displaying luxurious leaf growth or spacious, healthy lawns), the post-nominal usage is generally accepted as being restricted to referents which employ expressions such as ‘ko no...’ (‘this...’) or ‘kyo no ...’ (‘today’s ...’).

For prototypically blue phenomena (the best examples being the sky and the sea) these descriptors are conventionally used pre-nominally (in descriptions such as ‘aoao toshita sora’ [a very ‘ao’ sky] and ‘aoao toshita umi’ [a very ‘ao’ sea]) and post-nominally (predicatively) without any need for reference restriction. Interestingly, certain informants considered a newly shaven face to be an appropriate referent for ‘aoao toshitiru’ (although not a prototypical exemplar), the description being considered equally appropriate used pre- or post-nominally.

In reference to bananas, caterpillars, blood vessels, vegetables, traffic lights, the beefsteak plant, moss, bruises, lawns, rice fields, the human face, leaves and processed seaweed (‘nori’) several informants offered the information that ‘that’s what they’ve always been taught that’s why “ao” is the term to use here’.

11. The ease of linguistic reference semantic domain

This was referred to by various informants particularly in relation to apples, traffic lights, leaves, the beefsteak plant and 'nori' processed seaweed. The comments made by informants strongly suggest that 'midori' is simply not a readily combinable morpheme and that accordingly attempts to describe the aforementioned referents using it would result in clumsy expressions. Generally speaking the sense was that 'ao' fits as a descriptor because of its ease of use.

The information contained in the 11 semantic domains identified above can, in various combinations, be used to explicate the cultural schemas understood by JNS in relation to the use of 'ao' as a descriptor for the broad categories of humans, animals and plants. In the case of land plants there are those a) which produce fruit which come with the expectation of a colour change to show maturity, b) those which are leafy (trees and certain vegetables) and c) those for which the fruit is green regardless of the level of maturity. For ease of reference, these are simply referred to as 'Semantic Domain 1', 'Semantic Domain 2' and 'Semantic Domain 3' etc. in interpretations made in relation to the data outlined below.

Humans

'Ao' is used to mean 'green' for people, with the connotative meanings being inexperienced, naive, immature and youthful (Semantic Domain 1). In reference to the human complexion it connotes sickness (Semantic Domain 8). Informants point to the expression 'ao nisai' (literally: 'an 'ao' two year old') meaning someone who is very young and naive, the Kenkyusha Dictionary offering the expression 'a greenhorn' as a translation. In this connection several informants made reference to the 'Mokohan' which is a feature of Oriental infants. The 'Mokohan', or Mongol Spot, is a natural phenomenon which exhibits itself in the majority of, if not all, Japanese babies. It refers to a large 'aoi', or bluish, mark (resembling a huge bruise) which is a feature of newborns and infants. It is invariably located on the lower lumbar region, spreading to the top of the buttocks. It disappears of its own accord in a matter of weeks after birth. The expression 'mokohan ga mada tsuiteiru' literally means 'the Mongol Spot is still attached' [hasn't disappeared yet] and could perhaps be considered to carry the same meaning as the English expression 'still wet behind the ears'. The Mongol Spot is a physical sign of immaturity which is 'aoi' and which, accordingly, can be easily construed as representing a natural link between the physical world and the connotative

meaning of immaturity associated with the ‘ao’ schema. This phenomenon was referred to by several informants.

Youths are referred to as being ‘sei-nen’ or, literally, ‘green year (people)’, while ‘sei-shun’ is the term for one’s youth, so the mental association with ‘youthfulness’ is integral to the ‘ao’ cognitive schema. In the case of both ‘sei-nen’ 青年 and ‘sei-shun’ 青春 the bound morpheme ‘sei-’ is orthographed using the character ‘ao’ (青).

Animals

JNS do not experience ‘iwakan’ (a sense of awkwardness or strangeness) about using ‘ao’ as a descriptor for certain green coloured animals which are well known to JNS and with which there is a sense of cultural affinity. Examples of such animals include the ‘ao-mushi’ (green caterpillar), ‘ao-gaeru’ (green frog) and ‘ao-umigame’ (green sea turtle) (Semantic Domain 3). In addition there is the ‘ao-headed duck’ (the Mallard). Whilst informants often commented that the use of ‘ao’ to describe the Mallard’s head colour was personally inexplicable, it remains the conventional practice to accept ‘ao’ as a bound morpheme incorporated in the proper name of species such as these (Semantic Domain 9). Another example of an animal which incorporates the character ‘ao’ in its name is the native snake, the ‘ao-daisho’. Although accepted as a proper name by JNS, the ‘ao-daisho’ itself isn’t ‘ao’. According to the Kojien Dictionary, however, it does display a number of (inconspicuous) green stripes on its brown body - a fact which no informant who participated in this research demonstrated an awareness of. Without exception, research participants indicated they did not know the reason why certain green animal species were referred to with the term ‘ao’, although they accepted this customary usage of the term.

The green python, not a native species nor one integral to the Japanese culture, was described as ‘midori’ rather than ‘ao’ by most informants. Those who referred to it as ‘ao’, however, invariably commented on the beauty of the colour (Semantic Domain 5).

Plants in general

The research suggests that, under the appropriate circumstances, ‘ao’ is readily accepted as a descriptor for the leaves of plants which have a culturally-based traditional significance for the Japanese (Semantic Domains 2, 5 and 10). This is

perhaps not surprising, as it is with such plants that the Japanese people are generally very familiar. Plants such as bamboo, moss, rice, lawn grasses and trees in general lend themselves to description using the expressions ‘ao(i)’ and/or ‘aoaotoshiteiru’. Three plants which are considered of considerable cultural significance to the Japanese are ‘matsu’ 松 (pine trees), ‘take’ 竹 (bamboo) and ‘ume’ 梅 (plum), the characters for these plants often being found written together, forming a ‘jukugo’ (or character combination) which reads ‘sho-chiku-bai’ 松竹梅 according to the ‘onyomi’ of the characters. The pine is said to represent longevity and stateliness, the bamboo resilience and the ability to yield to tempest and then regain its posture when the tempest has passed. Plum blossoms are considered symbolic of refinement and symbolize an appreciation of the artistic, finer things in life. Together these three plants represent very noble and desirable characteristics and are, in Japan, commonly associated with auspicious occasions such as weddings and the like. All can be described as ‘ao’ or ‘aoao toshiteiru’. Pines are described using the character for ‘ao’ in the expression ‘hakusha seisho’ 白砂青松 (read according to the ‘onyomi’) which is more easily comprehensible when read according to the ‘kunyomi’, as ‘shiroi suna, aoi matsu’ 白い砂青い松, the meaning being ‘white sands, green pines’. Young, healthy bamboo can be referred to as ‘ao-dake’ and the verdure or fresh foliage (generally described as ‘shinryoku’, or ‘new greenery’) of trees, particularly deciduous trees (examples of which are the plum and the cherry blossom), generally can be readily described as being ‘ao’/’aoao toshiteiru’. The new foliage of Douglas Firs, the typical Christmas tree, however, is not usually referred to in terms of its being ‘ao’. Very few informants suggested that ‘ao’ should be considered in any way appropriate as a descriptor for the Douglas Fir. Despite this, the traditional German song ‘Oh Tannenbaum’, which extols the virtues of the evergreen Douglas Fir, has been translated into Japanese to incorporate the expression ‘tokiniwa aoi ki’ (literally, an ‘always aoi tree’). The researcher suggests that in this case the translator extended the custom of applying ‘ao’ as a descriptor of plants which are traditionally considered of cultural and historical significance (to the Japanese), to a referent which is of cultural and historical significance to Europeans. One might conjecture that the purpose was to impart to the JNS target audience the sense that the tree about which the song was written was one of long-standing cultural significance in its homeland.

Provided the conditions under which prototypical examples of the use of ‘ao(i)’ and ‘aoao toshiteiru’ in relation to plants that are familiar in the traditional Japanese setting are replicated elsewhere, responses received from informants suggest that these terms can be used in settings outside Japan without ‘iwakan’, or a sense of awkwardness/inappropriateness being felt.

Land grasses

For lawns, rice fields, bamboo and leafy plants in general ‘aoao toshiteiru’ describes the state and healthy appearance of the plants and their foliage (Semantic Domains two and three). The reference is to the appearance of green, healthy plants with young, new growth (usually thought of as foliage) such as that typically associated with rice plants or other grasses as they appear during the rainy season, which occurs annually at the beginning of summer (Semantic Domains two and six). There is an implication that the plants will be characterized by the sort of vigorous growth typically displayed by thriving rice plants, weeds or other grasses such as bamboo. Examples of healthily growing plants (whether spreading outwards [lawn grasses or other low growing grasses such as ground covers] or upwards [rice plants or other tall growing grasses such as bamboo]) awaken the ‘ao’ cognitive schema when viewed at some distance so that the impression created is that of a whole surface area or expanse of verdant growth - typically new leaves, but not excluding other new growth such as stems/tendrils (Semantic Domain four). The rainy season, which coincides with the early part of the Japanese summer (June/July), typically provides the conditions under which it is appropriate to use the description ‘aoao toshiteiru’ in reference to the appearance of leafy plants. Other Japanese expressions very often quoted by informants to explain the circumstances under which it is appropriate to use the description ‘aoao toshiteiru’ were ‘ikiiki to shiteiru’ (full of life), ‘mizumizushii’ (young and fresh), ‘kakki ga ate’ (vigorous), ‘genkina jotai’ (healthy state) and ‘oishigetteiru’/‘shigetteiru’ (displaying flourishing, leafy verdure). The expression ‘aoao toshiteiru’ applies also to trees and vines etc. where the new greenery, as opposed to old foliage or the wood of the branches or tree trunks, is the primary factor in determining the visual effect (Semantic Domain four).

Some informants claimed that, in the case of lawns, the expression ‘ao’ comes to mind very naturally and easily as a result of the cultural knowledge associated with the proverb ‘tonari no shibafu wa aoku mieru’ (neighbouring lawns appear ‘ao’),

alternatively stated ‘tonari no shibafu wa aoi’ (neighbouring lawns are ‘aoi’) (Semantic Domain ten).

It is interesting to note that Stanlaw (1987, p.440) reported that a research respondent of his, provided data which supported the enhanced-feature theory of conceptualization (a view that argues that people are constantly reconstituting their view of reality by reconstructing meaning) in relation to the name of the Tokyo suburb ‘Aoyama’, insofar as it was claimed that the grass there in fact was really blue very early in Spring. A similar response was noted amongst those offered by my JNS research collaborators. A 66 year old male informant, who admitted he had never actually seen an ‘ao-daisho’ snake, claimed that the serpent really was in fact very, very blue at one stage of its development.

Sea grasses

Sea grasses or ‘kaiso’ 海草 (referred to in English by the non-flattering appellation ‘seaweeds’), are generally not considered ‘aoao toshiteiru’ in nature because they don’t present as a whole area (or spectacle) of vivid greenery (Semantic Domain four). ‘Aoi’ is used as a descriptor, however, for green seaweeds which are presented as food products (Semantic Domain three). The seaweed offered as a foodstuff under the name ‘wakame’, for example, is green and when a very plentiful supply has been harvested ‘aoao toshiteiru’ could be used as a descriptor (Semantic Domains four and six). This description would carry the connotative meaning of ‘freshness’ or ‘freshly harvested’ (Semantic Domains two and three). Informants’ comments clearly indicate that when ‘wakame’ is served it is more appetizing to describe it as ‘aoi wakame’ rather than simply as ‘wakame’.

Land moss

Traditionally, moss (‘koke’) 苔 is a culturally prized plant in Japan and one which is cultivated for its intrinsic beauty. It would usually be grown for display in traditional settings. Informants pointed out that there is a temple in Kyoto called the ‘Koke Dera’, or ‘Moss Garden Temple’, where the rich moss can be described as being ‘ao-goke’ (Semantic Domains five and seven). Informants suggest that because the moss garden at the ‘Koke Dera’ covers an area of considerable expanse (Semantic Domain four), the expression ‘aoao toshiteiru’ is appropriate, particularly when the area is obviously wet or damp (‘jimejime shiteiru’), such as is the case during the rainy season (Semantic Domain six). Moss is considered to be ‘aoao toshiteiru’ only when

there is an expanse of it (‘ichimen to hirogatteiru’) in an environment where dampness abounds (it is ‘jimejime’) and there is no direct or obvious sunlight. Informants suggest that the rainy season (June/July) would typically be the best time to use this descriptor. A small amount of moss could be described as being ‘ao(i)’, a reference to its lushness or absence of desiccation. As a concept, JNS associate ‘aoi’ moss with there being plenty of moisture present. Informants were less concerned with whether the colour was light or dark green and quite unsure when asked whether light green or dark green should be thought of as being prototypical for ‘aoao toshita koke’.

Sea moss

The characters for ‘sea’ 海 and ‘moss’ 苔 combine to form a ‘jukugo’ (character combination) which reads ‘nori’ 海苔. Nori is the cultivated, edible seaweed which is processed into thin, dark green sheets and commonly used to wrap around rice balls and cakes in various traditional dishes such as sushi (typically ‘nigiri-zushi’ and ‘nori-maki’). ‘Ao-nori’ (literally ‘ao sea moss’) refers to small flakes of nori used as a savoury topping for rice and is a major component of ‘furikake’, a food product which is sprinkled onto plain, hot rice to make it flavoursome. JNS informants indicate that while ‘ao-nori’ is accepted as a product (although not a brand) name (Semantic Domain nine), the role of the ‘ao’ component of the name acts to enhance the appeal it has as a foodstuff (Semantic Domain three).

Leaves

When the expression ‘aoao toshiteiru’ is used as a descriptor for lawns, rice fields, trees, forests or mountains the basic sense is that it is the visual impression given by the leaves which allows the schema to operate (Semantic Domains two and four). Certainly leaves themselves can be ‘aoao toshiteiru’, and by extrapolation, so can whole plants where the leaves create the visual impact of there being a blanket or carpet of lush verdure. The expression ‘ao-ba’ (‘ao leaf’ or ‘ao leaves’), however, would seem to be not used in reference to the leaves of grasses or ground covers, but only in reference to the foliage of trees or vines, and then usually to impart a sense of traditional beauty (Semantic Domain five). Certain informants used the expression ‘ao ba waka ba’ (‘ao leaves, young leaves’) as a synonym for ‘shinryoku’ (‘new greenery’ or new foliage growth), the appearance of which is an annual natural phenomenon which is synonymous with spring, while others described ‘ao-ba’ as the mature, darker coloured leaves of summer. Yet others suggested that ‘ao-ba’ must be new fresh leaves of

established plants, not seedlings. Newly-germinated seedlings ('shinme'), however, can be described as 'aoi shinme', though their leaves are not 'ao-ba'.

The lack of agreement amongst informants as to just what colour 'ao-ba' are added weight to the conviction expressed by many informants that this term is reserved for poetic, literary usage where a romantic effect is required and that it is not a feature of contemporary parlance (Semantic Domain seven). While there was wide agreement that this term typically appears in environments such as the titles of songs (a commonly quoted example being 'Aobajo no koiuta'), there was no agreement as to just what mental image this term conjured up. It is clear, however, that the use of the term 'ao-ba' is accepted by JNS as a literary phenomenon and not a literal description.

Trees/forests/mountains

'Aoao toshiteiru' refers to the situation of there being verdant, flourishing, lush leaf growth and is an appropriate description for a tree, bush or hedge with fresh green foliage when viewed from a distance, thus giving the overall impression of a flourishing and healthy plant (Semantic Domains two and four).

The same conditions determine the appropriateness of the use of 'aoao toshiteiru' as a descriptor for forests ('mori'). Informants generally suggested that the picture stimulus of a 'mori' used during the oral interviews (Image No. 38) is past being 'aoao toshiteiru'. When viewed from a distance a 'mori' could be 'aoao toshiteiru' if its leaves were fresh, possibly with the sun highlighting their verdure, thus creating an impression of vigour and health.

Similarly, it is because of the verdure that the expression 'aoao toshiteiru' is possible as a descriptor for heavily wooded mountains in spring or early summer, a period of the year which coincides with the rainy season (Semantic Domain six). Generally, however, mountains are thought of as being 'fukai midori' (dark green) in colour. Only if viewed from a distance (Semantic Domain four), with the effect being one of the mountain being shrouded in verdure (Semantic Domain two), is it possible to describe a mountain or mountains as 'aoao toshiteiru'. The same 'ao' schema allows for a mountain range to be described as an 'aoi sanmyaku' (an 'aoi' mountain range) and for expressions like 'aoi yamanami (ga mieta)' [some 'aoi' mountains came into view] to be possible (Semantic Domain seven), despite the fact that mountains as such are not generally thought of or described as being 'ao(i)'. In a similar way, trees and forests, which are never considered 'ao(i)' in themselves, can be described as 'aoao toshiteiru'

when viewed from a distance and the overall effect is one of there being a profusion of healthy, flourishing and luxuriant leaf growth (Semantic Domain two).

Leafy vegetables

There was near universal agreement amongst informants that the use of ‘ao(i)’ as a descriptor for vegetables connoted freshness, with expressions like ‘oishiso’ (appetizing) and ‘toritate’ (freshly picked) commonplace amongst the oral and written comments received from JNS (Semantic Domains two and three). Not all leafy vegetables are treated the same way, however, with certain traditional dark green vegetables such as ‘horenso’ (spinach), ‘shungiku’ (the spring chrysanthemum, or *chrysanthemum coronarium*) and ‘shiso’ (the beefsteak plant, or *perilla frutescens crispata*) lending themselves very readily to this description. ‘Ao-yasai’ (‘ao’ vegetables), the research indicates, are thought of by JNS as being vegetables which are either dark green in colour (prototypically ‘nappa rui’ or leafy vegetables such as ‘horenso’ [spinach], ‘chingensai’ [bok choy] or ‘komatsuna’ [choy sum]) or which are otherwise a healthy green colour (e.g. ‘shiso’ [the beefsteak plant], broccoli, ‘nira’ [shallots/chives] or the leaves of ‘ao-negi’ [spring onion]). Leafy vegetables where the edible leaves are a lighter shade of green (e.g. lettuce, cabbage or ‘hakusai’ [Chinese cabbage]) are generally not considered as exemplars belonging to the category ‘ao-yasai’, with neither lettuce nor cabbage being cited as examples of this category by any informants (unlike the situation for spinach or bok choy). The research indicated, however, that the subjective term ‘ao-kusai’ (literally: smelling of ‘ao’) is well suited to describe lettuce and cabbage, both of which are conventionally eaten raw in Japan, as it describes the taste and olfactory sensations involved in eating things which are felt to be ‘not ready for consumption’ (Semantic Domain one). Unripe bananas would be similarly categorized, as would any fruit or vegetable which tastes as though it is not quite ready for the table (i.e. which is not properly ripe or cooked). Informants indicate that ‘ao kusai’ means the item of food in question hasn’t gone through the requisite process(es) for rendering it ready for serving. This expression is also used to describe the smell of newly mown grass.

The research indicates that the ‘fresh’ or ‘appetizing’ aspect of the meaning of the term ‘ao(i)’ (Semantic Domain three) extends to green vegetables which are not leaf vegetables (e.g. broccoli) and, by further extension, to edible items such as green ‘wakame’ seaweed. In addition, various varieties of green-coloured pods and beans (e.g. ‘eda mame’ [soy beans], ‘sora mame’ [broadbeans], ‘endo mame’ [peas], ‘ingen mame’

[French beans] and possibly 'sayaendo' [snow peas]) are accepted as valid, although not good, examples, of foods for which the 'ao' descriptor is applicable.

Vegetables and fruits which change colour when they ripen

'Ao' is used for vegetables and fruits where the ripening process produces a change in colour (Semantic Domain one). In such cases it is used to mean 'green' or unripe and describes the 'urerumae no kudamono', or the 'fruit before ripening', which are 'sodachikitteinai', or 'not fully mature'. Typically reference would be to familiar things that change colour to show ripeness, such as tomatoes, strawberries, bananas and the like. Informants indicated that apples that are described as being 'mada aoi' are ones which are 'still aoi' or 'still unripe'. 'Ao-ringo', on the other hand, is a variety of apple which is green even when mature (Semantic Domain nine).

Unripe strawberries are 'ao' but even as they ripen and turn red ('aka') the calyx at the top of the strawberry remains green. Referring to it as the 'aoi tokoro' ('the aoi part') imparts a sense of it being fresh (i.e. unwithered) and accordingly a sense of the fruit having been freshly picked (Semantic Domain three).

Vegetables and fruits for which a colour change does not accompany ripening

'Ao' is also used in cases to describe fruits and vegetables where a colour change does not accompany the ripening process - green vegetables in general being referred to as 'ao-mono' (kanji) or 'sei-ka' (kanji).

For certain fruits and vegetables the green colour of the unripe fruit is not indicative of the state of being unripe - green apples ('ao-ringo'), honeydew melons ('meron'), capsicums ('piiman') and green chillies ('ao-togarashi'), for example, are the same green colour whether ripe or unripe. When this is the case there is either collocational binding (e.g. 'ao-mono' [literally 'ao things', a metaphor used to describe 'ao' groceries] which are alternatively referred to as 'sei-ka' ['ao fruit and vegetables']) (Semantic Domain nine) or a cultural affinity which allows the 'traditional' usage of 'ao' to suggest a freshness or sense of appeal associated with the green colour of the ripe fruit or vegetable (e.g. 'meron' [honeydew melon] and 'horenso' [spinach]) (Semantic Domains three and two), or both (e.g. 'ao-jiso', 'aoi shiso' [ao(i) beefsteak plant]). The implication of freshness is directly linked to the notion of 'being appetizing'. Many informants described the picture of the beefsteak plant ('shiso', Image No. 41), for example, with either the expression 'ao' or 'aoao toshiteiru', immediately following it with 'oishiso' ('it looks good to eat'). Accordingly, when a

diet conscious mother tells her family to eat the ‘ao-yasai’(‘ao vegetables’) she has served, the reference is to green vegetables which, by connotation, have been freshly picked and prepared. This is not to say, however, that these aspects of the ‘ao’ schema can be universally employed when describing vegetables for which a colour change does not take place. On this point Stanlaw (1987, p.382) comments that ‘some referents seem to take English loanword colour terms almost exclusively’. My research results concur with this position, indicating that the expression ‘guriin piisu’ was used virtually universally to describe the peas depicted in Image No. 18. The native expressions ‘ao-mame’ and ‘ao-endo’ were conspicuous only by their lack of usage or total absence, indicating that the loanword expression incorporating the colour term ‘guriin’ was fully acculturated, acting as a proper noun for which, no alternative was considered.

Binary situations

The interviews indicate that for several of the images involved there is a linguistic binary categorization in place which suggests that things are ‘ao’ if not ‘aka’ and vice versa. Vegetables and fruits for which a colour change does not accompany the ripening process, are a case in point, with the descriptor ‘ao(i)’ can be a means of differentiating the green-coloured variety of a fruit or vegetable from those of other colours. To the Japanese, prototypical capsicums are green, so their non-prototypical versions are described using other colour terms (e.g. ‘aka piiman’ or ‘red capsicum’). Green apples, on the other hand, are considered a variant on the prototypical red, and as such must be described as ‘ao-ringo’ to distinguish them from the usual ‘ringo’ which are ‘aka’. Likewise chillies (‘togarashi’) are typically thought of as being red and so the green varieties are referred to as ‘ao-togarashi’ (Semantic Domain eight).

It is interesting to note that the prototypical melon in Japan is green (the colour of which was described as ‘meron-iro’ [melon colour] by some informants), and that accordingly, a very sweet melon flavour, which is accompanied by a distinctive musk-like fragrance, is associated with the colour green by JNS. By contrast, the colour green is used to signify the flavours of spearmint or lime in the West.

The data suggest that the human complexion, also, is subject to binary descriptions, although in the case of this item neither ‘aka’ nor ‘ao’ is considered the norm. A face flushed with blood is described as being ‘aka’ while one drained of blood is described as being ‘ao’. The data further suggest that eyes are similarly customarily subject to binary descriptions, although the binary does not invoke the usual ‘aka’ and ‘ao’ categories. Traditionally the Japanese classified eye colours into only two

categories. Asian people were considered to have ‘kuroi me’ (literally ‘black eyes’, that is to say eyes for which the iris was a very dark colour) and Westerners were considered to have ‘aoi me’ (‘aoi’ eyes). The research indicates that, while green eyes can be denotatively distinguished from blue eyes (the picture of a green human eye [Image No.12] was widely described as being a ‘midori-iro no me’ [a green-coloured eye]), the ‘kuroi - aoi’ binary is still influential in terms of the underlying operational schema for many JNS today (the word association test indicating that ‘eyes’ can be associated with ‘ao’ but not with ‘midori’).

Comments made by some informants indicated that not only blue eyes, but green eyes also can be described as ‘aoi me’ because this term is used as a metaphorical reference to Caucasians generally. A person having blue eyes, green eyes or any shade in between could be described as ‘aoi me wo shiteiru’ (having ‘aoi’ eyes). One informant pointed out that for JNS ‘aoi me no oyome-san’ (a wife with ‘aoi’ eyes) is an expression which refers to any foreign [Caucasian] wife. Thus cultural history and linguistic custom dictate that a person with blue eyes or green eyes may be described as having ‘ao(i)’ eyes (Semantic Domain ten). However, while this expression can be applied to a cat with blue eyes it is not deemed suitable as a descriptor for a cat with green eyes. The data indicate that when asked to describe a picture of a cat with green eyes informants tended to either seek to painstakingly describe the hue denotatively or alternatively fall back on shared cultural knowledge by employing general terms of explication such as ‘neko no me [no iro]’ ([they are the colour of] cat’s eyes).

Traffic lights

In the 1970s anthropologists, such as Leach (1970), Sahlins (1976a, 1976b) and Gamst (1975), demonstrated an awareness of the problematic nature of the nomenclature involved when describing the colours of Japanese traffic lights. Stanlaw picked up this topic again in the following decade.

The results of my research reveal that ‘aka’ (red), ‘ao’ (blue/green) and ‘kiiro’ (yellow) are considered the three primary colours for artists in Japan and informants pointed out that the names for these three terms combine very euphonically in Japanese (Semantic Domain eleven). In relation to the combined expression ‘aka-ao-ki’ informants use the expression ‘goro ga ii’ to mean ‘rolls off the tongue very easily’ or in this case ‘go together naturally’. ‘Midori’ or ‘midori iro’, by contrast, is thought to be an expression which is both linguistically clumsy and of a secondary level of cognitive importance. Accordingly, it is without ‘iwakan’, or any sense of awkwardness, that JNS

have, since traffic lights were first introduced to Japan in May 1930, used and accepted 'ao' as a descriptor for the 'proceed' traffic signal (Semantic Domains ten and 11). One could also suggest that Semantic Domain one might be invoked by this item as, by its very nature, it carries the clear expectation that a colour change will be involved. In this regard Stanlaw (1987, p.434) comments that '...many of the features carried by the Japanese 'ao' term are also carried by English GREEN'. Apparently, it is these features of 'beginning' and 'starting' – and not simply those of hue – that Japanese people are responding to when they select 'ao' to label their green-hued traffic go-signal'.

Prototypical exemplars: the sky and the sea

It is of interest to note that activation of the various 'ao' semantic domains is not a phenomenon restricted to green coloured referents. On the contrary, many of the semantic domains are readily identifiable with the prototypical exemplars 'the sky' and 'the sea'. In particular, the sense of 'expansiveness' (Semantic Domain four) was referred to by a number of informants who indicated that when the sky or sea is described as being 'ao(i)' the implication is that it is the 'open sky' or the 'open sea' to which reference is being made. That is to say, when these items are described as being 'ao(i)' they appear 'deep' and the colour is a deep blue. Accordingly an association between the concept of being aesthetically appealing and being 'ao' is readily formed (Semantic Domain five).

Implications with respect to the research literature

'Ao' is an ancient term

The research provides evidence obtained from primary source materials in the Japanese language (Nagasaki, 1999) which acts to substantiate the assertion by Berlin and Kay (1969) and Wierzbicka (1996) that 'ao' might be an older term than 'midori', hence validating the claim that the original Berlin and Kay hypothesis concerning the universal ordering of colour term encoding, specifically in respect to the universal encoding of a term for green before the encoding of a term for blue, required revision. Six years after Berlin and Kay's original hypothesis, Kay (1975, p.260-265) suggested that 'grue', a non-green/blue differentiating term, should be incorporated into the encoding sequence. The colour encoding sequence in relation to the Japanese language was acknowledged as being a factor in the need to revise the originally proposed universal ordering of colour encoding in order to allow for the inclusion of the composite category 'grue'. Accordingly, Kay modified the original evolutionary colour encoding sequence, incorporating this new 'composite' basic colour category. Iijima et

al (1982, p.257) state that this was done ‘to accommodate Japanese as well as some similar cases’ because ‘Berlin and Kay regarded the diachronic development (‘evolution’) of the Japanese colour vocabulary as an exception’ [to the proposed rules covering the universal ordering of colour coding]. They go on to point out that ‘at an earlier stage [in the development of Japanese] *ao-iro* meant *grue*’.

This thesis outlines the extent to which the remnants of this *grue* category are still evident in contemporary Japanese and offers evidence that ‘ao’ historically encompassed green, thus identifying the historical basis for the linguistic tradition by which, under certain circumstances, green hues may be found under the ‘ao’ umbrella in modern Japanese.

‘Ao’ and ‘midori’ equalling blue and green is a post-Meiji (1868-1912) phenomenon

This thesis adds weight to the assertion by Fukuda (1983) that ‘ao’ equated with blue and ‘midori’ equated with green are relatively new concepts for JNS. Similarly it supports Fukuda’s position that the modern concepts of ‘midori’ being represented by bright green and of turquoise being considered a colour in-between ‘ao’ and ‘midori’ were concepts unknown to the Japanese of yesteryear. That the dullish ‘moegi’ (a light green) colour was representative of the colour green to the Japanese of pre-Meiji times, is a further assertion Fukuda makes which this thesis acts to support.

Kobayashi (1974, p.120) also comments on the colour consciousness of the Japanese in the post-Meiji era, informing us that the colours ‘ao-midori’ and ‘midori’ came into the Japanese consciousness and found a clear niche for themselves only as a result of the impact of Western culture in Japan. He states that in oriental culture the distinction between ‘ao’ and ‘midori’ was never clear cut. This thesis acts to prove that a clear distinction does exist in contemporary Japanese between ‘ao’ and ‘midori’ (used to mean ‘blue’ and ‘green’ respectively) but makes the point that this is only true when the terms are being used denotatively. Connotative aspects of the meaning of ‘ao’, however, are shown to form an accepted part of contemporary Japanese, thus allowing certain distinctly green referents to be described using this term.

The Mallard duck

A look at Ihara’s (1997) study of the use of colour terms in Japanese literature in the Middle Ages provides some interesting insights into the use of the term ‘ao’ at that time. His work lists ‘birds’ under the classification ‘ao’ and the item ‘duck’s feathers’ is found in the prose he quotes. The typical duck, the Mallard, has a green head and neck -

the male of the species is called a 'greenhead' in English (Japanese-English Kenkyusha Dictionary 2003) - with a white ring 'collar' below which there are brown feathers on the body (refer to Appendix 4.2, Image No. 36). Nakamura (1990, p.8) suggests that we must question whether or not the term 'ao' as listed by Ihara in this context has the same field of reference as that of the colour descriptor in the term 'ao-bane' ('ao' feathers) found in Genji no Monogatari, where the colour reference is thought to be in the blue part of the spectrum. This research lends support to the argument posited by Nakamura that the colour being referred to by the term 'ao' in Genji no Monogatari, and in subsequent centuries, has indeed changed from the original dark green, as in the contemporary context no informant described the picture of the duck's green head using 'ao'.

'Mizu-iro', 'sora-iro', 'kimidori' and 'kon' as basic and common terms

In their 1969 groundbreaking treatise Berlin and Kay acknowledge that Japanese and Russian are languages which have terms for dark blue which could be considered for basic colour term status. Stanlaw (1987) goes further and suggests that Japanese has several basic colour categories in addition to the eleven described by Berlin and Kay (1969). He suggests (1987, p.188) that Japanese 'has, or is in the process of developing' basic colour categories for yellow-green ('ki-midori'), light blue ('mizu-iro' or 'sora-iro') and dark blue ('kon').

This thesis offers evidence in support of Stanlaw's (1987) claim that 'mizu-iro' and 'ki-midori' should be considered basic colour terms in Japanese and, further, it supports his assertion that neither age nor gender appear significant factors in determining the selection of 'ao' or 'midori'. The research results presented here indicate that the terms 'ki-midori', 'mizu-iro' (or 'sora-iro') and 'kon' were indeed used frequently (although not universally and not always consistently) by a cross section of informants during the oral interviews. Interestingly, Tyson (1994, p.16; p. 46) reports a similar situation in relation to the terms 'yentwu-sayk', hanul-sayk' and 'nam-sayk' in the Korean language.

'Midori' as a basic colour term

Nagano (1996), however, suggests that the term 'midori' should not qualify for basic colour term status in Japanese. He states that as 'midori' usually falls within the area of semantic space covered by 'ao' its inclusion as a basic colour term is in violation of the criterion which states that a basic colour term cannot cover the same area of semantic space as that already covered by an existing basic colour term. Further, while

the etymology (of 'midori') is unclear, he points out that in the Yaezan dialect this term refers to the shoots or buds of plants and some academics in the field of Japanese literature accept this meaning as the original, basic meaning. If this interpretation is correct then the inclusion of 'midori' as a basic colour term also would infringe another basic colour term criterion laid down by Berlin and Kay (1969) which states that a basic colour term must be mono-significant, that is to say the meaning of the colour term is not included in any other lexical item. This thesis offers evidence, however, that suggests that only in historical contexts is 'midori' generally subsumed under the 'ao' umbrella and that in all contemporary situations of a denotative nature 'ao' and 'midori' are thought of as being quite separate colours. Accordingly I would suggest that the inclusion of 'midori' as a basic colour term in Japanese can be validated.

Ephemeral quality

The literature indicates that some linguists consider that the use of 'ao' should invoke a sense of there being an ephemeral quality attributed to that which is being described. Maeda (1983), for example, suggests that 'ao' has, since ancient times, referred to a general dark green colour which is associated with mature vegetation in summer, as opposed to the more modern word, 'midori', which has been used in reference to yellower, new foliage (this position is supported by Nagasaki, 1977, p.76). She goes on to say (quoted in Nakamura, 1990, p.9) that 'it would appear that the Japanese people didn't have a great concern for the actual hue as such, preferring to use "ao" for things which had an ephemeral quality about them'. Nakamura (1990) also takes the position that 'ao' is the colour of mature vegetation in summer. The inclusion of a reference to the warmer seasons by my informants in describing the conditions under which 'ao' would be an appropriate descriptor for certain referents (such as mountains covered in foliage, rice fields etc) could be thought to act in support of this position, possibly implying that the display of mature green of foliage is a transient phenomenon. No informant who collaborated in my research, however, made direct reference to the notion of transience.

It would appear that this aspect of the 'ao' schema is one based upon a long, historical tradition. A brief look at Nakamura's work in relation to the number of references to the terms 'ao' and 'midori' to be found in *Genji no Monogatari*, and classified according to season (see Chapter 3), clearly points to the warmer seasons as the times of the year when these terms were considered appropriate.

More recently, Wierzbicka (1996, p.313), in seeking to map the meaning of 'ao', suggests that:

a triple model, based on the sky (primary point of reference), the sea (secondary point of reference), and vegetation after rain (a tertiary point of reference) might seem to accord ...with the way 'ao' is used, and with informants' responses to it.

The need Wierzbicka (1996, p.312) feels to qualify references to vegetation (with the phrase 'after the rain', for example) is a significant point of variance between the position she proposes and that which I have developed as a result of my research. In Chapter 5 I have indicated that green vegetables, apples, moss, lawns and leaves were all suggested as 'ao' referents by the 65 JNS informants who participated in the word association component of this research, with no qualification stipulated from any of them – none suggesting that 'rain' (or any other conscious notion of temporary or transitional status) need be involved at all. The 'wetness' semantic domain (Semantic Domain six), identified as one of the semantic domains which JNS may call upon when judging the appropriateness of 'ao' as a descriptor for a given referent, would not usually encompass foliage vegetation, as the data suggest that items in this category are restricted to ones which are intrinsically wet or moist, such as turtles, frogs, seaweed and moss (growing in the shade). Nowhere in the information gleaned from my informants was rain, as such, referred to. It may be that, for JNS, however, that the 'luxuriant foliage and freshness' semantic domain (Semantic Domain two) is considered synonymous with a wet climate, but the fact that rain was not mentioned by any informant in any context would suggest that rain should perhaps be regarded as nothing more than a catalyst which acts produces the conditions which allow the 'luxuriant foliage and freshness' semantic domain to operate.

Although Wierzbicka (1996, p.312) makes the argument that the Japanese language somehow distinguishes between 'ao' and 'midori' on the basis of there being a general 'reference to a transitory state', she does not expand on this to discuss the domain of the immature, the unripe or the unsophisticated. In this thesis I have formalized this principle under the heading of a semantic domain entitled 'unripe/inexperienced or expectant colour change'. My research indicates that any use of 'ao' which incorporates an aspect of anticipated change is highly referent dependent. Even for a single referent evidence is provided which indicates that different semantic domains may be called upon when the descriptor 'ao' is employed. For example, green apples which are unripe and may call upon Semantic Domain one, the

‘unripe/inexperienced or expectant colour change semantic domain’. Apples which, due to the variety in question, are still green at maturity, on the other hand, may call upon Semantic Domain three, the ‘healthy growth and appetizing’ semantic domain to be invoked.

While Wierzbicka (1996, p.312) suggests that ‘there is perhaps a general link between “aoi-ness” and a possibility of change’, Stanlaw (1997, p.256) takes the position that what the Japanese seem to encode in their use of ‘ao’ is the idea of ‘starting’ or ‘beginning-ness’. This possibility of change is referred to also by an earlier colour researcher, Nagasaki (1977, p.104) who points out that in ancient times ‘hanada’ was a term used to describe a particular kind of ‘ao’, adding that it was associated with the notion of a ‘change of heart’. It is possible that the contemporary Japanese language has inherited this suggested ‘expected colour change’ aspect of the ‘ao’ schema which I have identified as part of one of the criteria JNS call upon when determining the appropriateness of ‘ao’ as a descriptor. My research suggests that there may be certain configurations of culture-based, conventionalized background knowledge shared by JNS which endorse the existence of such a link for certain referents (or metaphoric or collocational usages of the term) under certain conditions. It strongly indicates (Conlan, 2003, p.74), however, that the notion of ‘aoi-ness’ being linked to a ‘possibility of change’ or ‘beginning-ness’ should not be considered universal. The extent to which the use of ‘ao’ is conditional upon a notion of transitional status is proven in this study to be highly referent dependent.

Wierzbicka (1996, p.312) comments also that ‘when there is no need for contrast, *aoi* is used to cover many “greens” (as well as all “blues”)’. My research results suggest that this statement is rather too broad as it ignores all connotative aspects of the terms ‘ao (i)’. While it is indeed true that ‘ao(i)’ is used to cover many ‘greens’ as well as all ‘blues’ the statement needs to be qualified with the information that it is not the denotative usage of the term which is being employed when green referents are referred to using this term. In a similar way, when Nagasaki (1977, p.76) reports that ‘Often, among the colour terms used to describe green tones you will find the term “ao” being used. It refers to a dark midori colour with an “ao” flavour to it. It is not distinguished from midori’ one should be aware that this statement allows no consideration for the context in which the colour is presented. This thesis suggests that without distinguishing between the denotational and connotational aspects of the use of the term ‘ao’, Nagasaki’s statement is both too sweeping and misleading.

Acknowledgment of idiosyncratic usages of colour terms existed from ancient times

An interesting suggestion by Nakamura (1990, p.7) is that, in some instances the choice of 'ao' or 'midori' by Murasaki Shikibu, the 10th century author of *Genji no Monogatari*, could well reflect nothing more than the 'frame of mind' or 'mood' of the writer at the time of writing and that the choice of descriptor was something that could be swayed by factors in nature such as the season or amount of natural light available at the time of description.

Berlin and Kay (1969) also commented that speakers of a given language disagreed among themselves and that individual speakers were not consistent in their responses when tested at various times. On this point Stanlaw (1987) suggested that certain sociolinguistic factors could affect colour term choice for JNS and be examined several such factors he thought might be responsible for affecting differential use of loanword terminology. He concluded (1987, p.379), however, that while all of the parameters he listed affected the use of loanword terms to some extent 'none...afforded a consistent explanation which could account for the great diversity shown by informants in their choice of colour terminology', adding that 'each English loanword colour term seems to have had a different etymology, both with regards to its existence in Japanese in the first place, and also as to the reason a person will choose to use it at some particular time'. He went on to state (1987, p.390) that '...there exists variety and indeterminacy in the choice of colour terms by individuals, which is independent of referent or circumstance' and refers (1987, p.397) to 'the human element, the speakers' individual moods, creativity, or even just plain indeterminacy', offering support to the position outlined by Sperber and Wilson (1986) in their discussion of the permitted manipulation of linguistic parameters under broad, culturally-based consensual guidelines.

The results of my research support the position of there being considerable idiosyncratic usages of colour terms in relation to Japanese, as both non-consistency in individual usage and discrepancy in term usage between speakers were evident in the oral descriptions informants provided of picture stimuli.

Denotational vs connotational usages of 'ao' in contemporary Japanese

People who are familiar only with European languages might be tempted to think that Japanese is an odd sort of language inasmuch as it boasts a basic colour term which is acknowledged as describing an area of semantic space which is 'shared' between (and can encompass both) blue and green. Wierzbicka (1996, p.300-310) states

that 'in Japanese both the terms aoi "blue, blue-green, shining green" and midori "green" are not mutually exclusive'. Many linguists, including Berlin and Kay (1969, p.42-43) and Taylor (1995, p.14), however, provide sound evidence that Japanese is by no means alone amongst the world's languages in terms of having a colour expression which does not clearly distinguish these colours. Taylor (1995, p.14) refers to the 'highly puzzling merging of blue and green in many languages of the world'.

Whereas Lee (2001, p.98) points out that for English speakers the distinction between blue and green is fundamental - the sky is definitely 'blue' and leaves are definitely 'green' - for Japanese speakers the term 'ao' (or 'aoi') is a linguistic encoding which can be used naturally to describe both of these things. The sky is described as being 'ao' ('ao-zora'), so are leaves ('ao-ba'). The sea is also 'ao' ('aoi-umi'). Although for the Japanese the sky is clearly prototypically 'ao', and likewise for English speakers the sky is prototypically 'blue', sometimes things that English speakers would normally classify as being green are also covered by the term 'ao' in Japanese. Traffic lights are a case in point, as are Caucasian eyes, which are all described as being 'ao' ('aoi-me'), regardless of whether English speakers would refer to them as being 'blue' or 'green'. McNeill (1972, p.26) reports that the distinction between the colour terms 'ao' and 'midori' is by no means clear-cut, and Stanlaw (1987, p 109) states that 'some referents can take both [the terms] 'ao' and 'midori' and presumably there is a range of hues which can take both terms'.

This research points to the fact that as a denotational reference 'ao' is universally accepted by contemporary JNS as referring to blue hues and 'midori (-iro)' is universally accepted as a reference to green hues. It is only when the term 'ao' is used connotatively, and then only under certain conditions, that it is widely accepted to refer to certain referents which display green hues. My research results suggest that the broader parameters of the semantic boundaries of 'ao', while being highly contextually dependent, are widely recognized, used and accepted by JNS (regardless of age) when descriptions of contextualized images are sought. In other words, 'ao' is widely accepted, and used, as an appropriate descriptor for certain decidedly green referents under certain circumstances by JNS.

This research has identified the fact that it is generally referents which have life (humans, animals or plants) for which the connotative use of 'ao' as a descriptor of green things is permitted. For humans the general meaning carried by the term 'ao' is 'callowness' or 'inexperience'. For inedible leafy plants 'ao' is generally thought of as

being a reference to luxuriant and fresh foliage, while for edible leafy plants it is thought of as referring to fresh and appetizing foliage. For the fruit of plants it suggests either the situation of being unripe (and a colour change expected) or alternatively of being fresh and appetizing (with no colour change expected). For animals the use of 'ao' is somewhat harder to succinctly explain, although collocation, established linguistic tradition and ease of expression would all appear to be elements which act to determine JNS judgment in terms of the appropriateness of 'ao' as a descriptor.

Green things which are not associated with ever having had life generally cannot be described using 'ao'. Exceptions to this rule would need to meet at least one of the criteria identified in this thesis as being the linguistic and socio-cultural semantic domains which determine JNS judgments in terms of the appropriateness of 'ao' as a descriptor.

Implications of an incidental nature

The evidence suggests that the use of loanwords in Japanese is less stable than that of native words, there being examples of green colours being called 'buruu' and blue colours being called 'guriin', suggesting that the JNS choice of loanword involves elements of a socio-linguistic paradigm which is extraneous to the hue being described. The data generated by the present study would appear to support claims made by Stanlaw's (1987) extended feature theory and MacLaury's (1992) vantage theory which argue that colour naming involves not just universal perception, but other cultural and cognitive influences. Certainly some informants tried harder than others to make distinctions between terms and colour categories, this resulting in some quite long interviews featuring the use of numerous loanwords.

Tyson (1994, p.174) reports that at least one of his informants (an elderly man) believed that English colour terms were 'more precise (sic) and perhaps an indication of higher education than Korean'. The data gathered for the present research similarly identifies at least one informant (a 74 year old female) who stated that English terms were to be preferred when precision was required. This argument follows a different line of reasoning to that suggested by Horiuchi (1963), Quackenbush (1974) and Pierce (1971), who claim that the plethora of English loanwords in Japanese is closely related to the influence the mass media, and particularly advertising, has on the Japanese society.

Because of the current status of English as the most widely used language in the world for most of last century (Kachru, 1986a) situations where English has come into

contact with other languages have been the object of much research (e.g. Haugen, 1988; Kachru 1982a, 1992; Vierech & Bald, 1986). The influence of English in Japan in general terms has been the subject of study by numerous researchers (e.g. Duppenhaler, 1989; Haarman, 1984, 1986, 1990; Hayes, 1979; Higa, 1979; Hinds, 1974; Hoffer, 1980, 1989, Hoffer & Honna, 1984; Ishiwata, 1986; Kay, 1986, 1989; Kelley, 1990; Lovins, 1975; McCreary, 1990; Miura, 1979; Morrow, 1987; Nagasawa, 1957-58; Ono, 1992; Pierce, 1971; Sato, 1975-76; Smith, 1974; Stanlaw 1982, 1987; Takashi, 1990a, 1990b; Tsunoda, 1988). The most comprehensive study to date on the question of English loanword colour nomenclature in modern Japanese is Stanlaw's (1987) doctoral thesis which focuses on the issue of the greater salience enjoyed by certain loanwords, particularly 'orenji' (orange) and 'pinku' (pink), but also 'guree' (grey), over their native equivalents 'daidai-iro', 'momo-iro' and 'hai-iro' (or 'nezumi-iro') respectively and concerns itself with the levels of difference on the semantic differential between the two sets of native Japanese and imported English loanword colour terms. The loans 'guriin' and 'buruu' are not focussed upon, but are rather dealt with (together with an array of other loans) in the context of the affective roles played by both sets of colour terms.

Takashi (1990a, p.26) points out that for a language having a syllabary like Japanese, it is easy to borrow foreign words. This is true as the existing syllabary provides an already-standardized means of transferring the sounds of the donor language into the phonological system of the host language. The Japanese language is particularly well-suited to transcribing any foreign word in a form that is easily pronounced by completely monolingual native speakers. In other words, Japanese is a language particularly well-suited to adopting and assimilating loanwords (Stanlaw, 1987, p.126; Tyson, 1994, p.62). Expressions of foreign origin are readily 'Japanizable' in terms of pronunciation. This process, however, often distorts the original pronunciation, sometimes beyond recognition for speakers of the source language. Japanized English loanwords are thus sometimes rendered incomprehensible to English speakers. Often the process of seeking to adopt English loanwords by having the phonetic system of the Japanese language accommodate the foreign sounds involved removes the phonemic distinction which exists between English homophones. For example, in order for the English loanwords 'blue' and 'green' to be 'Japanized', that is made to meet the requirements of the sound system of the Japanese language, the phonemic distinction which exists in English between the sounds 'l' and 'r' has to be ignored, the in-between pronunciation being conventionally orthographed using 'r'

only. 'Japanization' also prescribes that all consonants (with the exception of 'n') will be followed by a vowel sound, and that all vowel sounds will be of either the long or short variety (a phonemic distinction in Japanese). Orthographically long vowel sounds are often indicated by letter duplication. Thus 'blue' is rendered 'buruu' (this would also be the rendering of 'brew') and 'green' is rendered 'guriin' (as would also be the word 'glean'). Just as loanwords undergo a process of phonological 'Japanization' (which effectively estranges them from their donor language) they also move away from the source language by adopting distinctly Japanese meanings and usages. Stanlaw (1987, p.188) indicates that the foreign colour loanwords, for example, consistently represent a higher level of brightness and a broader range of hues than their native equivalents. He states that:

The mapping tasks showed that the English loanword colour terms have no special correspondence to native English colour terminology. In other words, it is the label (the colour term) but not the referent (the colour itself) that is borrowed into Japanese. There is also no special connection between the native Japanese colour categories and the English loanword colour categories. That is, for most informants most English loanword colour terms are not just simple substitutes or synonyms for their native Japanese counterparts.

Whilst the prescribed katakana syllabary makes it obvious to the JNS that such words are loanwords, this alone is not sufficient to exclude them from the status of being 'fully-fledged' Japanese words. Stanlaw (1987, p.140), for example, indicates that certain colour term loanwords (most notably 'orenji' [orange] and 'pinku' [pink]) are used with much greater frequency than their native equivalents, 'daidai-iro' and 'momo-iro'. In fact the latter two terms are so rarely used that they could not be considered standard expressions. Takashi (1990a, p.55) reminds us that 'There is still no clear-cut standard for [defining] an accepted loanword'. Just where the line which demarcates accepted or standard loanwords from others should be drawn is an area of research which lies beyond the scope of the present study. It is sufficient for the purpose of this study to indicate that the terms 'buruu' and 'guriin' are loanwords which are in the vocabulary of some JNS (and that certain socio-cultural factors have a bearing on their usage) and that, unlike the situation for the terms 'pinku' and 'orenji', the incidence of usage of these terms is not of a level which positions them to replace their native equivalents, 'ao(iro)' and 'midori(iro)'.

This research looked not only at the area of semantic space covered by 'ao', but also the areas of semantic space covered by the other native term 'midori' and the

loanwords 'buruu' and 'guriin'. It sought to investigate how 'ao' interacts with these terms, to establish prototypes for each of them and to determine what range of referents each of these terms covers. This thesis offers evidence which strongly suggests that the meanings 'sad' and 'lonely' can be carried by the loanword 'buruu' (as per the donor language) but that the meanings 'callow' and 'inexperienced' are not carried by the loanword 'guriin' (unlike the situation in the donor language). In relation to the question of the native word 'ao' vs the loanword 'buruu', this thesis offers support for the argument posited by Stanlaw (1987, p.399) that these terms differ 'both metaphorically and cognitively'. This is evidenced by the contrasting expressions 'kao ga aoi' and 'kao ga buruu' which, while both literally meaning 'a blue face', in fact carry entirely different meanings; the former being a reference to a sickly-looking complexion while the latter describes a sad-looking facial expression.

Prestige of English image being modern, educated and sophisticated

English has been a required subject in Japanese schools since 1945. It is also a very popular subject of study in universities and private educational institutions by people of all ages and occupations. Generally English is perceived as an integral part of the process of 'internationalization' so respected by Japanese business corporations. Many Japanese parents view English as vital to their children's future success in life, while university students often consider a knowledge of English one of the surest means of securing a good job after graduation. Business people often see it as one of the fastest ways to climb the corporate ladder. Certainly most Japanese see English as an international language that provides an essential link with the world outside Japan's borders. Perhaps for all these reasons there is an identity implicit in the use of English loanwords in Japan that represents an association with the concepts of being modern, educated and sophisticated. Accordingly, Japanized English loanwords have become part of the linguistic repertoire of JNS who associate themselves with the upper echelons of society. My research findings, specifically the fact that the use of 'buruu' and 'guriin' for decontextualized colour samples is dominated by respondents over the age of 50, support this position. This is parallel to the situation described by Baik (1992, p.29) and Tyson (1994, p. 19) in relation to the Korean society. Simply stated, the more educated the informant and the higher the level of perceived social status, the more care appears to have been taken by my informants to consider colour terminology, often with the result of liberal lashings of loanwords featuring in oral interviews. This was particularly noticeable in the oral interviews of a retired male heart surgeon, a retired

female fashion co-ordinator and interior decorator and a retired female school principal. All were in their 60s or 70s.

In a series of articles and books on the use of English in Japan Haarmann (1984, 1986, 1990) reports that foreign words can be used in Japanese more to affect the emotions of the listeners than to pass meaning as such. In other words they can be used, particularly in advertising, to impress. This observation would appear to be supported by the evidence provided by the data gathered in relation to this thesis, as it suggests that the desire to impress and appear sophisticated was an element determining colour term choice for some of my older informants. It is clear from the data that the use of loanwords increases with advances in the age brackets of informants. Older informants chose to use loanwords much more commonly than their younger compatriots. Unlike the conclusion drawn by Tyson (1994) in relation to the Korean language, however, that males generally scorned a detailed knowledge of colour terminology, apparently regarding such a matter as belonging to the domain of female interest, for my informants those who perceived themselves as educated and sophisticated were at pains to exhibit concern in relation to accuracy in terms of colour nomenclature. In contrast to the argument posited by Tyson (1994, p. 304) that the 'ao' category *cheng-sayk* 'blue; green; GRUE' is used more often by men than women, the findings of my research suggest no appreciable distinction between the sexes in terms of the choice of 'ao' as a descriptor.

In terms of the age variable, Stanlaw (1989, p.389) comments that '...older people generally still use the native Japanese colour terms (though young people are somewhat indeterminate in their usage of native Japanese and English loanword colours...)'. My research findings substantiate this, particularly in reference to the '-iro' type expressions, but suggest that loanword use, especially for decontextualized colour samples, is less prevalent amongst the young than it is amongst older informants.

Colour term researchers with an interest in the Japanese language have sometimes suggested a link between the use of native terms with items of cultural significance and the use of loanwords with items which project a more 'modern' image. Kimonos, for example, are obviously an embodiment of traditional Japanese culture and Stanlaw (1987, p. 388) points out that 'certain native colours...have been associated with the cult of the kimono...It would be very hard to imagine...people referring to 'buruu' ('blue') kimonos, or a manufacturer or marketing agency trying to associate English loanwords with such real "Japanese" things'. Tanaka and Koike (1982), Inagaki

(1982) and Hosono (1984) support the position that certain native colour terms are closely associated with the world of kimonos. The data upon which this thesis is based, however, suggest that 'ao', one of the four original colour terms in the language, is equally suitable for describing traditional leafy vegetables, for example, as it is as a descriptor for honeydew melons, a relatively recent addition to the Japanese table, or indeed the kiwi fruit, a very recent item to appear in Japan. As for the observed usage of the loanwords 'guriin' and 'buruu', there would appear to be an element of randomness involved, there being instances of these descriptors being included by informants as though on a whim. This would accord with the position taken by Stanlaw (1987, p.458), who argues the case for using an extended-feature theory of conceptualisation (which claims that depending on the time, situation, feelings and attitudes people will attend to different aspects of reality, resulting in a range of possible classifications for the same referent) in explaining the use of English loanword colour terms in Japanese, presenting analyses which support a theory of categorization based on 'broadly defined...non-required features' stating that 'English loanwords are sometimes used in the face of uncertainty or doubt (e.g. choosing 'buruu' when undecided about the appropriateness of 'ao' (blue) or 'kon' (dark blue))'.

In terms of the fairly loose rules which appear to determine the suitability of loanword descriptors, Stanlaw (1987, p.399) reported that 'loanwords are in a greater state of flux and instability than their native Japanese color term correspondences', and that (p.431) 'the boundary ranges for English loanword colour terms was greater' than for native colour terms. He also notes (1987, pp.400 - 403) that the most salient loanword colour terms ('pinku', 'orenji' and 'guree' – pink, orange and grey respectively) have become completely acculturated. By contrast, he suggests that the loanwords 'buruu' and 'guriin' command a higher level of idiosyncratic and inconsistent usage, reporting that 'Each English loanword seems to have a different 'etymology' or motivation for its existence in Japanese depending on the speaker's past circumstances. What is happening is that people are using them in unique and creative ways, both to conduct and establish meaning in social situations, as well as to express their individuality'. My research results accord with this general statement but draw attention to the greater use of 'buruu' and 'guriin' by older informants (those over the age of 50), both when describing decontextualized colour samples and contextualized ones. Stanlaw reports (1987, p.396) that 'There do not seem to be any consistent tendencies correlating English loanword usage with gender or field of study'. While the findings of my research support this statement I would suggest that there is a correlation

between loanword usage and age, a clear result of my research being that the frequency of loanword usage increases with advancing age brackets.

To summarize, the following conclusions may be drawn:

- * Older JNS (50+) employ a wider range of colour vocabulary than their younger counterparts. This applies to both the use of loanwords and the traditional ‘-iro’ type expressions.

- * The use of the ‘-iro’ type expression is a feature of the speech of older JNS.

- * The use of loanwords is noted as a feature of older JNS.

- * There is no evidence that gender is a factor in terms of colour term descriptor choice for JNS

- * Evidence has been provided indicating that the use of foreign loanwords (‘buruu’ and ‘guriin’) is rather random and that these terms are sometimes used interchangeably with their native equivalents by certain JNS.

- * The errant use of loanwords (colours which could not be described as ‘blue’ [or ‘green’] being described as ‘buruu’ [or ‘guriin’]) is mostly attributable to older informants

- * Generally speaking the phenomenon of expressing an inability describe a given image was the province of the older informant (50+)

Applications of the research

It is hoped that the findings of this research might affect language teaching practice by informing teachers of the historical basis for the common contemporary practice of describing certain green things, under certain circumstances, as ‘ao’ and by highlighting the associated connotative aspects of this term. Purposefully pointing out to students of Japanese that ‘ao’ does not reflect a one-to-one correspondence with the English term ‘blue’ will impart a sense of the complexities involved in interlanguage study. The differences between languages and linguistic systems reflect what Palmer (1996, p.4) describes as ‘culturally defined mental imagery - a cultural theory of linguistic meaning’. Without an appreciation of the ways in which different cultures organize and categorize domains of knowledge, foreign language learning could be reduced to a set of very dry one-to-one would-be correlations which do not reflect the reality of the complexity of differing world views.

This thesis has sought to identify the ways in which the Japanese language expresses the cognitive schema associated with the colour term expression 'ao'. It points out that considering 'ao' to be the Japanese equivalent of the English term 'blue' and accepting this as a one-to-one correlation sidesteps an entire aspect of the semantics of this term as understood and used by JNS. If we accept that cultural linguistics is primarily concerned not with how people describe some objective reality but rather with the semantic boundaries (in all their complexity) a language community agrees upon when using a given expression then we set the stage for language teachers to 'embrace the goals of grasping the native point of view and studying language use in its social and cultural context' (Palmer, 1996, p.35). This should be an inalienable objective for foreign language teachers. It is hoped the findings of this research will open the door leading to teaching practices which embrace this objective.

Limitations of the research

The cohort numbers are an obvious limitation of this research. There were three separate cohorts of informants numbering 65, 45 and 66 in Parts 1, 2 and 3 of the research respectively. Thus in total the number of JNS informants was 176.

This is a descriptive study and accordingly its findings cannot be taken as representing a definitive explication of the semantic boundaries of 'ao', although certain conclusions, which may, with later research, prove to hold universally true, are pointed to. I hold the findings of this research true for the informant population I worked with.

I acknowledge the possibility that responses received from informants may have, on occasions, been influenced by the fact that the researcher presenting the elicitation instruments and requesting co-operation with questionnaires and oral interviews was a 'gaijin', an 'outsider' or 'foreigner' as far as the linguistically isolated Japanese are concerned. This is a potential limitation over which I had no control. One of the major fears that JNS have in dealing with 'gaijin' is that they will be expected to operate in English, a situation which is decidedly disadvantageous for the great majority of them. When it was made clear that this would not be the case and that no knowledge of English was presumed, in other words that all contact between the researcher and informants (including all elicitation instruments) would be in Japanese, the psychological 'gaijin' barrier seemed to melt away rapidly.

It has already been acknowledged that the means of elicitation (specifically reliance on a mental prototype vs judgment based on an example) can be significant in determining responses. The choice of stimulus pictures similarly can be significant in

terms of determining responses. At least one informant commented on Image No. 38 (the forest), stating that the particular forest scene depicted was past being ‘aoao toshiteiru’.

Scope for further research

While this thesis sets out to examine the extent to which remnants of the former ‘grue’ category exist and are influential in contemporary Japanese, there has never been a similar comparative study involving the three main Oriental languages, Chinese, Japanese and Korean, which looks at this issue. Either the kanji for ‘ao’ or its nativized orthography is familiar to all speakers of all these languages. Hence the semantic boundaries of this concept, if compared across these languages, would reveal similarities and/or differences in terms of the directions in which these languages are individually developing or have individually developed.

Kobayashi (1974, p.120) comments on the colour consciousness of the Japanese in the post-Meiji era, informing us that the colours ‘ao-midori’ (for turquoise) and ‘midori’ (for green) came into our consciousness and found a clear niche for themselves only as a result of the impact of Western culture in Japan. He informs us that in oriental culture the distinction between ‘ao’ and ‘midori’ was never clear cut. A parallel situation would seem to exist in Korean, as Tyson (1994, p.120) offers evidence which indicates that while many Koreans (especially older speakers) do use terms to refer to colours in both the GREEN and BLUE ranges, few, if any Koreans actually maintain a ‘pure’ grue category. He reports (p.120) that ‘...virtually all of the younger Korean speakers I interviewed (i.e. in their twenties or younger) made a very strong distinction between GREEN and BLUE, albeit with some occasional inconsistent usages due to the remnants of the former GRUE category’. Older Koreans, Tyson reports, are less inclined to clearly distinguish between green and blue compared to younger informants. He reports (1994, p. 172) that ‘...the older group of consultants made a much weaker distinction between the GREEN and BLUE categories than the younger consultants did, strongly suggesting the remnants of a recent GRUE category in Korean’. He further (1994, p.235) suggests that his data ‘seems to substantiate the claim that some of the older consultants maintain a GRUE categoryeither mutually exclusive of or concurrently with separate GREEN and BLUE categories’. Tyson’s observations in relation to the Korean language beg the question ‘how appropriate is it to equate the Japanese colour expression “ao-iro” with the Korean “cheng-sayk” or the Japanese expression “aomidori-iro” with “chenglok-sayk” ‘ or indeed any of these expressions

with their equivalent expressions in Chinese, the language from which both Japanese and Korean inherited the forebears of these terms. For all these three languages the common ideographic 'kanji' symbols are the source of the colour expressions mentioned.

Future ethnographic studies might look at the question of whether there are any aspects of the history of the development of either the Japanese, Korean or Chinese languages which could suggest uniqueness in terms of contemporary interpretations of the semantic boundaries of the 'ao' (or its equivalent terms 'cheng' or 'qing') schema among these languages. Based on the work of Stanlaw (1987), Tyson (1994) has alluded to a strong suggestion of similarities and parallels between the linguistic situation in Korea and that in Japan. He makes reference to the green/blue/grue area, which he describes (1994, p.309) as being 'extremely problematic for analysis' in Korean. As yet, however, neither the semantic boundaries of the Korean term 'cheng-sayk' 青色 nor the Chinese term 'qing-se' 青色 have been researched (and reported in English) or compared with those of the Japanese expression 'ao-iro' 青色, all of which are written using the same ideographic characters. In other words, the cognitive schemas the character(s) 'ao'/'ao-iro' awaken in speakers of the Korean and Chinese languages have yet to be researched with a view to comparing them to those which apply to JNS. Such a cross-linguistic comparison would prove an area of research which would assist cognitive linguists understand the nature of the remnants of the original 'grue' category as it pertains to the main three languages of the Orient.

This thesis explores the interrelationship between the term 'ao' and the English loanword 'buruu' in Japanese. It points out that 'buruu' may be used to describe the situation of being low in spirits, a connotation, like the word 'buruu' itself, imported from English. This nuance, however, remains with the loanword only - the connotation never grafting onto the traditional colour terminology nor forming any part of the 'ao' schema. The research results indicate that JNS universally reject 'ao' as a descriptor for the situation of being low in spirits. On the other hand, while wide acceptance was indicated for the use of 'ao' as a suitable descriptor for the situation of being callow, the association test indicated that this connotation is never carried by the English loanword 'guriin'. In the case of the word 'guriin', the connotation of 'immaturity' or 'inexperience' was left in the source language when the word was adopted into

Japanese, the native colour term 'ao' traditionally embracing these nuances. 'Guriin' is used in Japanese exclusively as a colour denotational.

Future research might focus on whether or not a comparable situation exists in relation to loanwords in the Korean and Chinese languages.

In relation to collocations which would seem to be common to Japanese, Korean and their 'parent' language, Chinese, Tyson (1994, p.113) suggests that the equivalent of the Japanese expression 'ao-gaeru' (green frog) is 'cheng-kaykwuli' in Korean, stating that it would have to be translated literally as 'blue frog', adding that 'the word actually refers to a frog that is definitely green, not blue in colour'. He goes on to state that 'there are a very large number of similar examples in Korean vocabulary and usage which provide overwhelming evidence of the remnants of a former GRUE category in Korean'. This situation parallels very closely the situation described in this thesis in relation to Japanese, and while Tyson (1994, p. 299) states that '...the term that originally referred to Grue has come to refer to BLUE for most of my consultants', he falls short of discussing differences, such as those I have identified in this thesis in relation to the denotational and connotational uses of colour terms in the Japanese language, which might exist in Korean.

Summary of conclusions

Both the denotational and connotational aspects of the patterns of interaction between 'ao' and its 'rival' colour expressions, 'buruu', 'guriin' and 'midori', have been investigated and the prototypical exemplars of each term identified in this research.

This thesis has also identified 'ao' as being one of the earliest four colour terms in Japanese, originally used to cover all dark/cool shades from black through to the greens and the blues. It has shown that 'ao' represents the original non-green/blue-differentiating Japanese term 'grue' and it has investigated the extent to which this grue category still exists in contemporary Japanese.

It has found that in decontextualized situations the 'grue' category no longer exists in contemporary Japanese with JNS well able and keen to identify and distinguish blue and green using the labels 'ao' and 'midori' respectively. Evidence has also been provided which indicates that older JNS generally access a wider range of colour vocabulary in this regard (involving both the use of the '-iro' suffixed traditional colour descriptors and the English loanwords 'buruu' and 'guriin') compared to their younger counterparts.

In contextualized situations, however, evidence is provided which indicates that usages of 'ao' which reflect the existence of remnants of the original 'grue' category still find general acceptance amongst JNS, irrespective of gender and age variables. In other words, 'ao' is generally accepted as an appropriate descriptor and widely used to refer to certain green referents under certain conditions. The level of acceptability of this term, however, has been shown to be highly referent dependent.

This research has identified 11 linguistic and socio-cultural domains which combine to determine the parameters agreed upon by JNS in terms of the use of 'ao' to refer to things which are green in colour.

References

- Bahar, M., Johnstone, A.H., & Sutcliffe, R.G. (1999). Investigation of students' cognitive structure in elementary genetics through word association tasks. *Journal of Biological Education*, 33(3), 134-141.
- Baik, M. (1992). Language shift and identity in Korea. *Journal of Asian Pacific Communication*, 3(1), 15-31.
- Baines, J. (1985). Color terminologies and color classification: Ancient Egyptian color terminologies and polychromy. *American Anthropologist*, 87, 282-297.
- Bender, L. (1983). Color term encoding in a special lexical domain: Sudanese Arabic skin colors. *Anthropological Linguistics*, 25, 19-27.
- Berlin, B. & Berlin, E. (1975). Aguaruna color categories. *American Ethnologist*, 2, 61-87.
- Berlin, B. & Kay, P. (1969). *Basic color terms: their universality and evolution*. Berkeley: University of California Press.
- Berlin, B., Kay, P., Maffi, L. & Merrifield, W.R. (1991). *The world color survey*. Dallas: Academic Publications of the Summer Institute of Linguistics.
- Bickerton, D. (1981). *Roots of language*. Ann Arbor: Karoma.
- Boas, F. (1964). Linguistics and ethnology. In D. H. Hymes, *Language in culture and society*. (pp. 15-22). New York: Harper and Row.
- Bogdan, R. & Taylor, S. (1975). *Introduction to qualitative research methods: A phenomenological approach to the social sciences*. New York: Wiley-Interscience.
- Bohannon, P. (1963). *Social anthropology*. New York: Holt, Rinehart & Winston.
- Bolton, R. (1978). Black, white and red all over: The riddle of color term salience. *Ethnology*, 17, 287-312.
- Bornstein, M. (1973a). Color vision and color naming: a psychophysiological hypothesis of cultural difference. *Psychological Bulletin*, 80(4), 257-285.
- Bornstein, M. (1973b). The psychophysiological component of cultural difference in color naming and illusion susceptibility. *Behavioral Science Notes*, 1, 41-101.
- Bornstein, M. (1975). The influence of visual perception on culture. *American Anthropologist*, 77, 774-798.
- Bornstein, M. (1978). Considerations sur l'organisation des tonalités chromatiques. In T. S. Nanterre, *Voir et nommer les couleurs*. (pp. 71-82). Service de publication du Laboratoire d'Ethnologie et de Sociologie Comparative de l'Université de Paris X.

- Bornstein, M., Kessen, W. & Weiskopf, S. (1976). The categories of hue in infancy. *Science*, 191, 201-212.
- Bornstein, M. & Lawrence, M. (1982). Color revisionism. *Psychology Today*, 16(1), 64-73.
- Bowring, R. & Kornicki, P. (1993). *The Cambridge encyclopaedia of Japan*. Cambridge: Cambridge University Press.
- Boynton, R.M. (1977). Insights gained from naming the OSA colors. In Hardin, C. L. & Maffi, L. (Eds). *Color categories in thought and language*, 135-150. Cambridge, U.K.: Cambridge University Press:
- Braisby, N. & Dockerell, J. (1999). Why is colour naming difficult? *Journal of Child Language*, 26(1), 23-47.
- Branstetter, K. (1977). A reconstruction of Proto-Polynesian color terminology. *Anthropological Linguistics*, 19, 1-25.
- Brenner, M. (1985). Intensive interviewing. In M. Brenner, J. Brown & Canter, D. (Eds). *Research interview: Uses and approaches*. London: Academic Press.
- Brown, R. & Lenneberg, E. (1954). A study in language and cognition. *Journal of Abnormal and Social Psychology*, 49, 454-462.
- Brown, R. (1990). Chinese character education in Japan and South Korea. *Language & Communication*, 10(4), 299-309.
- Burgess, D., Kempton, W. & MacLaury, R. (1983). Tarahumara color modifiers: category structure presaging evolutionary change. *American Ethnologist*, 10(1), 133-149.
- Carr, T. & Cullen, T. (1994). Cognitive factors in learning about structured sequences: Applications to syntax. *Studies in Second Language Acquisition*, 16, 205-30.
- Carrithers, M.E.A. (1985). *The category of the person: anthropology, philosophy, history*. Cambridge: Cambridge University Press.
- Caskey-Sirmonds, L. & Hickerson, N. (1977). Semantic shift and bilingualism: Variation in the color terms of five languages. *Anthropological Linguistics*, 19, 358-367.
- Casson, R. W. (1997). Color shift: Evolution of English color terms from brightness to hue. In Hardin, C. L. & Maffi, L. (Eds). *Color categories in thought and language*. 224-240. Cambridge University Press.
- Chafe, W. (1970). *Meaning and structure of language*. Chicago: University of Chicago Press.
- Chafe, W. (1990). Some Things That Narratives Tell Us about the Mind. In B. Britton & Pellegrini, A. *Narrative thought and narrative language*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

- Chikae, G. (1983). Iro no imeeji to imi (The popular image and meaning of colours). *Iro no saijiki*. Tokyo: Asahi Shimbunsha.
- Coleman, L. & Kay, P. (1981). Prototype semantics: the English word lie. *Language*, 57, 22-44.
- Colors of Japan. (1993). *Pacific Friend*, 3, 41.
- Conklin, H. (1955). Hanunoo color categories. *Southwestern Journal of Anthropology*, 11, (4), 339-344.
- Conklin, H. (1973). Color categorization [review of Berlin and Kay 1969]. *American Anthropologist*, 75, 931-942.
- Conlan, F. (2003). Searching for the semantic boundaries of the Japanese colour term 'ao'. *Australian Review of Applied Linguistics* 26, (1), 71-86.
- Cook, H. (1991). *The Japanese particle Yo as a non-referential Indexical*. Second International Cognitive Linguistics Conference, University of California, Santa Cruz.
- Corbett, G. & Davies, I. A cross-cultural study of colour grouping: Evidence for weak linguistic relativity. *British Journal of Psychology*, 88, (3), 493-517.
- Corbett, G. & Morgan, G. (1988). Colour terms in Russian: reflections of typological constraints in a single language. *Journal of Linguistics*, 24, (1).
- Cruse, D. (1986). *Lexical semantics*. Cambridge: Cambridge University Press.
- Dale, P. (1986). *The myth of Japanese uniqueness*. New York: St Martin's Press.
- Danchev, A. (1988). Language contact and language change. *Folia Linguistica*, 22, (1-2), 37-53.
- Davidoff, J. (1991). *Cognition through color*. Cambridge, Mass.: MIT Press.
- Davidoff, J., Davies, I. & Robertson, D. (1999). *Nature*, 398, 203-204.
- Davidoff, J. (2001). *Trends in Cognitive Science*, 5, 382-387.
- Davies, I. & Corbett, G. (1997). A cross-cultural study of colour grouping: Evidence for weak linguistic relativity. *British Journal of Psychology*, 88, (3): 493-517.
- de Groot, A. (1989). Representational aspects of word imageability and word frequency as assessed through word association. *Journal of Experimental Psychology: learning, memory and cognition*, 15 (5), 824-845.
- Denzin, N. (1994). The art and politics of interpretation. In N. Denzin & Lincoln, Y., *Handbook of qualitative research* (pp. 500-515). Thousand Oaks: Sage:
- Dirven, R. & Verspoor, M. (1998). *Cognitive exploration of language and literature*. Amsterdam and Philadelphia: John Benjamins Publishing Company.
- Dougherty, J. (1975). *A universalist analysis of variability and change in color semantics*. PhD dissertation, University of California: Berkeley.

- Dougherty, J. (1977). Color categorization in West Futunese: Variability and change. In Blount, B. & Sanches, M. (Eds) *Sociocultural dimensions of language change*. 103-118.
- Dougherty, J. (1985). *Directions in cognitive anthropology*. Urbana: University of Illinois Press.
- Dronke, P. (1972). Tradition and innovation in medieval Western color-imagery. *Eranus*, 41, 52-107.
- Duppenthaler, P. (1989). Gaijin. *English Today*, 19, 5, (3), 30-31.
- Ervin-Tripp, S.M., Lander, H.S. & Horowitz, A.E. (1960). Navaho color categories. *Language*, 36, 368-382.
- Fauconnier, G. (1999). Methods and generalizations. In T. Janssen & Redeker, G. *Scope and foundations of cognitive linguistics*. The Hague: Mouton de Gruyter.
- Fewings, C. (1997). The indispensibility of Kanji: A study of the persistence of Kanji usage in the Japanese writing system. *School of Social Sciences and Asian Languages*. Perth: Curtin, 14-23.
- Fontana, A. and J. Frey (1994). Interviewing: The art of science. In N. Denzin & Lincoln, Y. (Eds) *Handbook of qualitative research* (pp. 361-376). Thousand Oaks: Sage,.
- Francisco, V., Thompson, E. & Rosch, E. (1991). *The embodied mind: cognitive science and human experience*. Cambridge, Mass.: MIT Press.
- Frumkina, R. (1984). *Cvet, smysl, sxodstvo*. Moscow: Nauka.
- Fukuda, K. (1983a). Haishoku no kiso chishiki. *Iro no saijiki*. Tokyo: Asahi Shimbunsha.
- Fukuda, K. (1983b). Nihon no dentou iro. *Iro no Saijiki*. Tokyo: Asahi shimbunsha.
- Fushimi, T., Ijuin, M. & Tatsumi, I. F. et al. (1996a). Kanji jukugo ni okeru consistency kouka (1) [Consistency effects in reading Japanese kanji words (1)]. *Proceedings of the Japanese Psychology Society Meeting, Ninchi [Cognition]*, 2-10.
- Fushimi, T., Ijuin, M. & Tatsumi, I.F. (1996). Kanji jukugo no ondoku ni okeru consistency (yomi ikkansei) kouka [Consistency effect in reading Japanese words]. *Proceedings of the Japanese Acoustic Society Meeting*, 2-6-12, 419.
- Gamst, F. (1975). Rethinking Leach's structural analysis of colour and instructional categories in traffic control signals. *American Ethnologist*, 2, 271-295.
- Gardner, H. (1985). *The mind's new science: A history of the cognitive revolution*. New York: Basic Books.
- Garfield, S. (2000). *Mauve*. London: Faber and Faber Ltd.

- Geeraerts (1988). Where does prototypicality come from? In Rudza-Ostyn, B. *Topics in cognitive linguistics*. (pp. 507-553). Rudzka-Ostyn. Amsterdam: John Benjamins.
- Geiger, L. (1872). *Ursprung und entwicklung der menschlichen sprache und vernunft*. Stuttgart: Cotta.
- Givon, T. (1992). The grammar of referential coherence as mental processing instructions. *Linguistics*, 30, 5-55.
- Gleason, H. (1961). *An introduction to descriptive linguistics*. New York: Holt, Rinehart and Winston.
- Goodenough, W. (1981). *Culture, language and society*. Menlo Park, California: Benjamin/Cummings.
- Haarmann, H. (1984). The role of ethnocultural stereotypes and foreign languages in Japanese commercials. *International Journal of the Sociology of Language*, 58, 101-121.
- Haarmann, H. (1986). Verbal strategies in Japanese fashion magazines - A study in impersonal bilingualism and ethnosymbolism. *International Journal of the Sociology of Language*, 50, 107-121.
- Haarmann, H. (1990). *Language in its cultural embedding: Explorations in the relativity of signs and sign systems*. Berlin: Mouton de Gruyter.
- Hage, P. & Hawkes, K. (1975). Binumarien color categories. *Ethnology*, 14, 287-300.
- Halliday, M. (1987). Spoken and written modes of meaning. In Horowitz, R. & Samuels, S. J. (Eds), *Comprehending oral and written language*. (pp. 55-82). New York: Academic Press,.
- Hardin, C. L. & Maffi, L. (Eds) (1997). Introduction. *Color categories in thought and language*. C.L. Hardin and L. Maffi. Cambridge: Cambridge University Press, 1-20.
- Hardin, C.L. (1993). *Color for philosophers: Unweaving the rainbow*. Indianapolis: Hackett, 155-164.
- Harkness, S. (1973). Universal aspects of learning color codes: A study in two cultures. *Ethos*, 1, 175-200.
- Hasegawa (1974). *Nihon no iro no kenkyu*. Tokyo: Iwanami Shoten.
- Hatasa, Y. (1992). *Transfer of the knowledge of Chinese characters to Japanese*, University of Illinois, 21.
- Hatch, E. & Brown, C. (1995). *Vocabulary, semantics, and language education*. Cambridge Language Teaching Library, Cambridge University Press.
- Haugen, E. (1950). The analysis of linguistic borrowing. *Language*, 26, (2), 210-231.
- Haugen, E. (1972). *The ecology of language: Essays by Einar Haugen*. Stanford, CA.: Stanford University Press.

- Haugen, E. (1988). The influence of English: A transatlantic perspective. *Folia Linguistica*, 22, (1-2), 3-9.
- Hayes, C. (1979). Language contact in Japan. In Mackay, W. & Ornstein, J. (Eds), *Sociolinguistic studies in language contact: Methods and cases*. (pp. 363-376). The Hague: Mouton Publishers,.
- Hayes, D. (1972). Color term salience. *American Anthropologist*, 74, 1107-1121.
- Heider, E. & Oliver, D. (1972). The structure of the color space in naming and memory for two languages. *Cognitive Psychology*, 3, 337-354.
- Heider, E. (1971). Focal colour areas and the development of colour names. *Developmental Psychology*, 4, 447-55.
- Heider, E. (1972a). Probabilities, sampling, and ethnographic method: The case of Dani color names. *Man*, 7, 448-466.
- Heider, E. (1972b). "Universals in color naming and memory." *Journal of Experimental Psychology*, 93, (1): 1-20.
- Heinrich, A. (1972). A non-European System of color classification. *Anthropological Linguistics*, 14, 220-227.
- Heinrich, A. (1977). Some notes on Central Eskimo color terminology. In W. McCormack & Wurm, S., *Language and thought*. (pp. 45-59). The Hague: Moulton.
- Hering, E. (1874, 1964). *Outlines of a theory of the light sense*. (Hurvich, L.M. & Jameson, D. trans.) Cambridge, Mass.: Harvard University Press.
- Hering, E. (1920). *Grundzuge der lehre vom lichtsinn*. Berlin: Springer.
- Higa, M. (1973). Sociolinguistic aspects of word borrowing. *Topics in Culture Learning*, 1, 75-85.
- Higa, M. (1979). Sociolinguistic aspects of word borrowing. In Mackey, W. & Ornstein, J. (Eds). *Sociolinguistic studies in language contact: Methods and cases* (pp. 277-292). The Hague: Mouton Publishers.
- Hinds, J. (1974). Make mine burakku. *Language Research*, 10, (23), 92-108.
- Hino, Y., Lupker, S. Sears, C.R., & Ogawa, T. (1998). The effects of polysemy for Japanese katakana words. In Leong, C.K. & Tamaoka, K. (Eds), *Cognitive processing of the Chinese and Japanese languages*. Dordrecht: Kluwer Academic Publishers.
- Hoffer, B. & Honna, N. (1984). Japanese use of English loans. In Miyagawa, S. & Kitagawa, C., *Studies in Japanese language use*. (pp. 35-56). Carbondale, Il.: Linguistic Research Inc.
- Hoffer, B. (1980). English loanwords in Japanese: Some cultural implications. *Language Sciences*, 12, (1), 1-21.

- Hoffer, B. (1989). The impact of English borrowings on Japanese language usage. *The sixteenth LACUS Forum 1989*. M. Jordan. Lake Bluff, IL.: Linguistic Association of Canada and the United States, 230-238.
- Horiuchi, A. (1963). *Department store ads and Japanized English: Studies in descriptive and applied linguistics*. Tokyo: International Christian University.
- Hosata, K. (2000). The Traffic Bureau of the National Police Agency. Personal communication.
- Hosono, H. (1984). Shikisai gengo no bungaku zakkan. *Gengo Seikatsu*, 16-24.
- Hurvich, L. M. (1981). *Color vision*. Sunderland, MA.: Sinauer.
- Hurvich, M. & Jameson, D. (1955). Some quantitative aspects of an opponent-colours theory. 1. Chromatic responses and spectral saturation. *Journal of the Optical Society of America*, 45, (7), 546-552.
- Hutchins, E. (1996). *Cognition in the wild*, MIT Press.
- Ihara, K. (1977) *Nihonbungaku Shikisai yougo Shusei* (Middle ages vol).
- Iijima, T., Wenning, W. & Zollinger, H. (1982). Cultural factors in color naming in Japanese: Naming tests with Japanese children in Japan and Europe. *Anthropological Linguistics*, 24, 245-262.
- Ikegami, Y. (1978). *Eigo kiso goi no kenkyu*. Tokyo: Nippon Hoso Shuppan Kyokai.
- Inagaki, Y. (1982). Jidai ni ikiru gairaigo. *Gengo Seikatsu*, 2-15.
- Ishiwata, T. (1986). English borrowings in Japanese. *English in contact with other languages: Studies in honor of Broder Carstensen on the occasion of his 60th birthday*. W. Viereck and W. Bald. Budapest: Akademiai Kiado, 457-471.
- Ito, Y. (1978). *Kanji nyuumon (Nihongo: First lessons in Kanji)*. Tokyo: The Japan Foundation.
- Japan's traditional colors. (1993). *Japan Pictorial*, 16, 32.
- Johnson, D. (1992). Ethnographic research. *Approaches to research in second language learning*. New York & London: Longman, 132-163.
- Kachru, B. B. (1982). Teaching world Englishes, In Kachru, B. (Ed.) *The other tongue: English across cultures*. Chicago, IL.: University of Illinois Press.
- Kaiho, H. & Nomura, Y. (1983). *Kanji jouhou no shori no shinrigaku* [Psychology of kanji information processing]. Tokyo: Kyouiku Shuppan.
- Kaiser, P. & Boynton, R. (1996). *Human color vision*. Washington, DC: Optical Society of America.
- Kaneko, T. (1983). *Midori no owari. Iro no saijiki*. Tokyo: Asahi shimbunsha.
- Kanji no chishiki. In *Nihongo 2, Tokusetsu nihongo gakka*. (1980). Tokyo University of Foreign Studies: Bonjinsha.

- Kay, G. (1986). The English in Japanese. *English Today*, 6, 25-27.
- Kay, G. (1989). Gairaigo revisited. *English Today*, 19, (5(3)), 32-35.
- Kay, P. & Kempton, W. (1984). What is the Sapir-Whorf hypothesis? *American Anthropologist*, 86, (1), 65-79.
- Kay, P. & Maffi, L. (1997). *Color categories in thought and language*. Cambridge: Cambridge University Press.
- Kay, P. & Maffi, L. (1999). Color appearance and the emergence and evolution of basic color lexicons. *American Anthropologist*, 101, 743-760.
- Kay, P. & McDaniel, C. (1975). Color categories as fuzzy sets. *Language behavior research laboratory*. Berkley: University of California.
- Kay, P. & McDaniel, C. (1978). The linguistic significance of the meanings of basic color terms. *Language*, 54, 610-646.
- Kay, P. & Regier, T. (2003). Resolving the question of color naming universals. *PNAS*, 100, 9085-9089.
- Kay, P. (1975). Synchronic variability and diachronic change in basic color lexicon. *Language in Society*, 4, 257-270.
- Kay, P., Berlin, B. & Merrifield, W.R. (1991). Biocultural implications of the systems of color naming. *Journal of Linguistic Anthropology*, 1, (1), 12-25.
- Kay, P., Berlin, B., Maffi, L. & Merrifield, W. R. In Kay, P. & Maffi, L. (Eds), Color naming across languages. In *Color categories in thought and language*. Cambridge: Cambridge University Press.
- Kelley, D. (1990). *A study of the influence of Chinese and English (and other western languages) on the Japanese language*. Indiana University.
- Kim, A. (1985). Korean color terms: An aspect of semantic fields and related phenomena. *Anthropological Linguistics*, 27, (4), 425-436.
- Kirihata, K. (1983). Iro no bunka shi [A cultural history of colour]. *Iro no saijiki*. Tokyo: Asahi shimbunsha.
- Kitahara, Y. (1997). *Aoba wa aoi ka? Nihongo wo Aruku*. Tokyo: Taishukan Shuppan.
- Kittay, E. & Lehrer, A. (1992). Introduction. In Lehrer, A. & E. Kittay, E. (Eds) *Frames, fields and contrasts: New essays in semantic and lexical organization*. Hillsdale, NJ.: Lawrence Erlbaum Associates Publishers, 1-18.
- Kittay, E. (1987). Semantic field theory. *Metaphor: Its cognitive force and linguistic structure*. Oxford: Clarendon Press, 214-257.
- Kobayashi, H. (2003). *Nihongo no Rekishi* (A history of the Japanese language): Aoshingo wa naze ao nanoka [Why is it traffic lights are 'ao'?). Tokyo: Kasama Shoin.
- Kobayashi, S. (1974). *Nihonjin no kokoro* [The Japanese mind]. Tokyo: Kodansha.

- Kraus, R. (1968). Language as a symbolic process in communication. *American Scientist*, 56, (3), 265-278.
- Kuschel, R. & Monberg, T. (1974). We don't talk much about color here: A study of color semantics on Bellona Island. *Man*, 9, 212-242.
- Labov, W. (1973). The boundaries of words and their meanings. In Fishman, J., *New ways of analyzing variation in English*. 340-373. Washington, D.C.: Georgetown University Press.
- Lakoff, G. & Johnson, M. (1980). *Metaphors we live by*. Chicago, London: University of Chicago Press.
- Lakoff, G. (1985). *Cognitive semantics*. Dept. of Linguistics, University of Illinois at Urbana-Champaign.
- Lakoff, G. (1987). *Women, fire and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.
- Langacker, R.W. (1987). *Theoretical prerequisites*. Stanford: Stanford University Press.
- Langacker, R.W. (1990). *Concept, image and symbol: The cognitive basis of grammar*. Berlin: Mouton.
- Langacker, R.W. (1991a). *Descriptive application*. Stanford: Stanford University Press.
- Langacker, R.W. (1991b). *Concept, image and symbol*. Berlin/New York: Mouton de Gruyter.
- Langacker, R.W. (2001). Discourse in cognitive grammar. *Cognitive Linguistics*, 12, (2), 143-188.
- Lantz, D. and V. Stefflre (1964). Language and cognition revisited. *Journal of Abnormal and Social Psychology*, 69, 472-481.
- Leach, E. (1970). *Claude Levi-Strauss*. New York: Vintage.
- Lee, D. (2001). *Cognitive linguistics. An introduction*. Melbourne: Oxford University Press.
- Lehman, F. K. (1985). Cognition and computation: On being sufficiently abstract. In Dougherty, J. *Directions in cognitive anthropology*. Urbana: University of Illinois Press, 19-48.
- Lehrer, A. (1974). *Semantic fields and lexical structure*. Amsterdam, London: North Holland Publishing Co.
- Lenneberg, E. (1953). Cognition in ethnolinguists. *Language*, 29, 463-471.
- Lenneberg, E. & Roberts, J. (1956). The language of experience: a study in methodology. *International Journal of American Linguistics*, 22, (2, part 2, memoir 13).
- Lenneberg, E. (1967). *Biological foundations of language*. New York: Wiley.

- Leong, C. & Tamaoka, K. (1995). Use of phonological information in processing kanji and katakana by skilled and less skilled Japanese readers. *Reading and Writing: An Interdisciplinary Journal*, 7, 377-393.
- Leong, C. K. & Tamaoka, K. (1998). *Cognitive processing of the Japanese and Chinese languages*. Dordrecht: Kluwer Academic Publishers.
- Lovins, J. (1975). *Loanwords and the phonological structure of Japanese*. Bloomington, Indiana: Indiana University Linguistics Club.
- Lucy, J. (1992). *Language diversity and thought. A reformulation of the linguistic relativity hypothesis*. Cambridge: Cambridge University Press.
- Lucy, J. (1997). The linguistics of 'color'. In Hardin, C.L. & Maffi, L. (Eds) *Color categories in thought and language*. (pp. 320-346). Cambridge, UK: Cambridge University Press.
- Lucy, J. & Shweder, R. (1979). Whorf and his critics: linguistic and nonlinguistic influences on colour memory. *American Anthropologist*, 81, 581-615.
- Lucy, J. & Shweder, R. (1988). The effect of incidental conversation on memory for focal colors. *American Anthropologist*, 90, 923-931.
- MacLaury, R. E. (1986). *Color in Mesoamerica, vol.1: A theory of composite categorization*. Berkeley: University of California.
- MacLaury, R. E. (1987). Coextensive semantic ranges: Different names for distinct vantages of one category. *Papers from the Annual Meeting of the Chicago Linguistic Society*, 23 (part 1), 268-282.
- MacLaury, R. E. (1991). Exotic color categories: Linguistic relativity to what extent? *Journal of Linguistic Anthropology*, 1, (1), 26-51.
- MacLaury, R. E. (1992). From brightness to hue: An explanatory model of color-category evolution. *Current Anthropology*, 633 (2), 137-186.
- MacLaury, R. E. (1995). *Color categorization in Mesoamerica: A cross-linguistic survey and cognitive model*. Austin: University of Texas Press.
- MacLaury, R. E. (1997). *Color and cognition in Mesoamerica: Construing categories as vantages*. Austin: University of Texas Press.
- Maeda, C. (1983). (fukukokuban). *Nihon Shikisai Bunkashi*. Tokyo: Iwanami shoten.
- Magnus, H. (1880). *Untersuchungen uber den Farbensinn der Naturvolker*. Jena: Fraher.
- Malcolm, I. (2001). *Apprehending and approaching cultural imagery in biadialectal education*. American Association of Applied Linguistics Conference, St Louis.
- Martin, S. (1966). Lexical evidence relating Korean to Japanese. *Language*, 42, (2), 185-251.

- Martin, S. (1990). Morphological clues to the relationships of Japanese and Korean. In Baldi, P. (Ed.), *Linguistic change and reconstruction methodology*. Berlin, Mouton de Gruyter, 483-509.
- Martin, S. (1991). Recent research on the relationships of Japanese and Korean. In Lamb, S. & Mitchell, E., *Sprung from some common source: Investigations into the prehistory of languages*. Stanford, CA.: Stanford University Press, 269-292.
- Masuda, K. (1980). *Kenkyusha's new Japanese -English dictionary*. Tokyo: Kenkyusha Ltd.
- Mathews, R., Buss, R., Stanley, W., Blanchard-Fields, F., Cho, J.R. & Douhan, B. (1989). Role of implicit and explicit processes in learning from examples: a synergistic effect. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 15, (6), 1083-1100.
- McClure, E. (1974). *The acquisition and use of Spanish and English color terms among Mexican American children*.
- McCreary, D. (1990). Loanwords in Japanese. *Journal of Asian Pacific Communication*, 1, (1), 61-69.
- McDaniel, C. (1972). *Hue perception and hue naming*. B. Honors thesis, Harvard University.
- McDaniel, C. (1974). *Basic color terms: Their neuropsychological sources*. Paper presented at the 73rd annual meeting of the American Anthropological Association, Mexico City, Mexico.
- McNeill, N. (1972). Colour and colour terminology. Review of Berlin and Kay (1969). *Journal of Linguistics*, 8, 21-34.
- Mervis, C., Catlin, J., & Rosch, E. (1975). Development of the structure of color categories. *Developmental Psychology*, 11, 54-60.
- Miles, M. Huberman, A. (1984). *Qualitative data analysis: A sourcebook of new methods*. Newbury Park: Sage.
- Miller, R. (1967). *The Japanese language*. Chicago: University of Chicago Press.
- Miller, R. (1977). *The Japanese language in contemporary Japan: Some socio-linguistic observations*. Stanford: AEI-Hoover Policy Studies.
- Miura, A. (1979). *English loanwords in Japanese: A selection*. Rutland, VT.: Charles E. Tuttle Co.
- Mori, A. (1873). *Education in Japan: A series of letters addressed by prominent Americans to Arinori Mori*. New York: Appleton.
- Morito, Y. (1978). Japanese English: The use of English by the Japanese today. In Koike, I. (Ed.) *The teaching of English in Japan*. (pp. 579-613). Tokyo: Eichosa.
- Morohashi, T. (1960). *Daikannwa Jiten (Chinese-Japanese Dictionary) vol. 9*. Tokyo: Daishukan.

- Morrow, P. (1987). The users and uses of English in Japan. *World Englishes*, 6,(1), 49-62.
- Murakami, M. (1987). Iro no kataru Nihon no rekishi. *Soshiete Bunko*, 13, 24.
- Muramatsu, E. (1983). Kagayaku umi to sora no ao. *Iro no saijiki*. Tokyo: Asahi shimbunsha.
- Mylne, T. (1995). Grammatical Category and World View: Western colonization of the Dyirbal language. *Cognitive Linguistics*, 6, (4), 379-404.
- Nagano, Y. (1996). Shikisaimeshou ni kansuru shomondai (questions relating to the naming of colours). *Nihongogaku*, 15, (1), 30-48.
- Nagasaki, S. (1977). *Iro no Nihonshi* [The Japanese history of color]. Tokyo: Tankosha Publishing Co.
- Nagasawa, J. (1957-1958). A study of English-Japanese cognates. *Language Learning*, 8, (1 & 2), 53-102.
- Nakamura, A. (1990). Genji monogatari no iro (jo). 'ao' to 'midori'. *Kanazawa Daigaku Kokugo Kokubun*, 15, 1-10.
- Neisser, U. (1967). *Cognitive psychology*. New York: Appleton.
- Nelson, A. (1974). *The modern reader's Japanese-English character dictionary*. Rutland, Vermont and Tokyo: Charles E Tuttle Company.
- Nida, E. A. (1959). Principles of translation as exemplified by Bible translating. In Bower, R. E, (Ed.), *On translation*. Cambridge, Massachussets: Harvard University Press.
- Nishida, H. (1999). A cognitive approach to intercultural communication based on schema theory. *International Journal of Intercultural Relations*, 23, (5), 753-777.
- Nishikawa, Y. (1975). *Shin shikisai no shinri* [The new psychology of color]. Tokyo: Hosei University Publishers.
- Nishiwaki, H. (1988). Ideograms in language contact: The use of Chinese characters in Japanese. *Fu-Jen Studies: Literature and Linguistics*, 21, 163-190.
- Nomura, M. (1989). Japanese in the age of the word processor. *Japan Echo*, 16, 46-50.
- Norman, D. (1988). *The psychology of everyday things*. New York: Basic Books.
- Ono, R. (1992). Englishized style repertoire in modern Japanese literature. *World Englishes*, 11, (1), 29-50.
- Palmer, G. & Woodman, C. (1999). Ontological classifiers as polycentric categories, as seen in Shona class 3 nouns. In Pretz, M. & Verspoor, M. (Eds), *Explorations in linguistic relativity* (pp. 225-249). Amsterdam and Philadelphia: John Benjamins.

- Palmer, G. (1996). *Toward a theory of cultural linguistics*. Austin: University of Texas Press.
- Palmer, G. (2001). Anthropological linguistics. In Geeraerts, D. & Cuyckens, H. (Eds), *Handbook of cognitive linguistics*. Oxford University Press.
- Palmer, G. (NDP). When does cognitive linguistics become cultural? Case studies in Tagalog voice and Shona noun classifiers. *Cognitive linguistics investigations across languages, fields, and philosophical boundaries*. J. Luchjenbroers, John Benjamins.
- Passin, H. (1979). *Language and cultural patterns*. Tokyo: Kinseido.
- Pierce, J. (1971). Culture, diffusion and Japish. *Linguistics*, 76, 45-58.
- Quackenbush, E. (1974). How Japanese borrows English words. *Linguistics*, (131), 59-75.
- Ray, V. (1952). Techniques and problems in the study of human color perception. *Southwestern Journal of Anthropology* 8, 251-259.
- Ridington, R. (1991). On the language of Benjamin Lee Whorf. In Brade, I., *Anthropological poetics* (pp. 241-261) Savage Md: Rowman and Littlefield Publishers.
- Rivers, W. (1901a). Introduction: Color vision. Reports of the Cambridge anthropological expedition to the Torres Straits. In Haddon, A. (Ed.), *Physiology and psychology* 2. Cambridge: Cambridge University Press.
- Rivers, W. (1901b). The color vision of the natives of Upper Egypt. *Journal of the Royal Anthropological Institute*, 31, 229-241.
- Rivers, W. (1901c). Primitive color vision. *Popular Science Monthly*, 59, 44-58.
- Rivers, W. (1902). The color vision of the Eskimo. *Proceedings of the Cambridge Philosophical Society*, 11, 142.
- Robertson, D., Davies, I. & Davidoff, J. (2000). *Journal of Experimental Psychology*, 129, 369-398.
- Rosch, E. (1973). Natural categories. *Cognitive Psychology*, 4, 328-350.
- Rosch, E. (1973a). On the internal structure of perceptual and semantic categories. In Moore, T.E., *Cognitive development and the acquisition of language*. New York, San Francisco, London: Academic Press.
- Rosch, E. (1975a). Cognitive reference points. *Cognitive Psychology*, 7, 532-547.
- Rosch, E. (1975b). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 19, 192-233.
- Rosch, E. (1975c). The nature of color codes for mental categories. *Journal of Experimental Psychology: Human Perception and Performance*, 1, 303-322.

- Rosch, E. (1977a). Classification of real world objects: origins and representations. In Johnson-Laird, P.N. & Wason, P.C. (Eds), *Thinking: readings in cognitive science*. Cambridge: Cambridge University Press.
- Rosch, E. (1977b). Human categorization. In Warren, N. (Ed.), *Studies in cross-cultural psychology, 1*, 1-49. London: Academic Press.
- Rosch, E. (1978). Principles in categorization. In Rosch, E. & Lloyd, B., *Cognition and categorization* (pp. 27-48). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Rossotti, H. (1985). *Color: Why the world isn't grey*. Princeton, N.J.
- Rumelhart, D. (1980). Schemata: The building blocks of cognition. In Spiro, R., Bruce, B. & Brewer, W. F., *Theoretical issues in reading comprehension*. Hillsdale, NJ: Earlbaum Assoc.
- Russell, B. (1948). *Human knowledge: its scope and limits*. New York: Simon and Schuster.
- Russell, B. (1973). *An inquiry into meaning and truth*. Hammondsworth: Penguin.
- Sahlins, M. (1976a). Colors and cultures. *Semiotica, 16*, 1-22.
- Sahlins, M. (1976b). *Culture and practical reason*. Chicago: University of Chicago Press.
- Saka, K. & Yoshiki, H. (1988). *Speak Japanese: A textbook for young students*. Tokyo, Kenkyusha.
- Sampson, G. (1980). *Schools of linguistics*. Stanford: Stanford University Press.
- Sapir, E. (1921). *Language: An introduction to the study of speech*. N.Y.: Harcourt & Brace.
- Sapir, E. (1949). *Selected writings of Edward Sapir in language, culture and personality*. Berkeley: University of California Press.
- Satake, A. (1979) Kodai Nihongo ni okeru Shikimei no Seikaku. *Nihon no Gengogaku, 5*, 357-358. Taishukan Shoten.
- Sato, P. (1975-1976). Loanwords and Japanese verbs. *Papers in Japanese Linguistics, 4*, 147-157.
- Saunders B. and van Brackel, J. (1997). *Behavioral Brain Science, 20*, 167-228.
- Schiffrin, D. (1987). *Discourse markers*. Cambridge: Cambridge University Press.
- Schmitt, N. (1998). Quantifying word association responses: what is native-like? *System, 26*, 389-401.
- Sharifian, F. (2001). Schema-based processing in Australian speakers of Aboriginal English. *Language and Intercultural Communication, 1*, (2), 1-15.

- Sharifian, F. (2002). Conceptual-associative system in Aboriginal English: A study of Aboriginal children attending primary schools in metropolitan Perth. *Community Service, Education and Social Sciences*. Perth, Edith Cowan University.
- Shepard, R. (1964). Attention and the metric structure of the stimulus space. *Journal of Mathematical Psychology*, 1, 54-87.
- Shepard, R. (1997). In Byrne, A. & Hilbert, D., (Eds) *Readings on color* (pp. 311-356. Cambridge, Mass: MIT Press 2.
- Shibata, T. (1975). On some problems in Japanese sociolinguistics: some reflections and prospects. In Peng, F. (Ed.), *Language in Japanese society* (pp. 159-174). Tokyo: University of Tokyo Press.
- Shibatani, M. (1990). *The languages of Japan*. Cambridge: Cambridge University Press.
- Shibatani, M. (1992). *Japanese*. New York: Oxford University Press.
- Shweder, R. & Bourne, B. (1984). Does the concept of the person vary cross-culturally? In Shweder, R. & LeVine, R. *Culture theory: Essays on mind, self, and emotion* (p.160). Cambridge: Cambridge University Press.
- Shweder, R. & LeVine, R. (1984). *Culture theory: Essays on mind, self, and emotion*. Cambridge: Cambridge University Press.
- Sinha, C. & Jensen de Lopez, K. (2000). Language, culture and the embodiment of spatial cognition. *Cognitive Linguistics*, 11, (1/2), 17-41.
- Slobin, D. (1997). From 'thought and language' to 'thinking for speaking'. In Gumphez, J. & Levinson, S., *Rethinking linguistic relativity*. Cambridge: Cambridge University Press.
- Smith, D. (1974). Ribbing Ingrish: Innovative borrowing in Japanese. *American Speech*, 49, (3-4), 185-196.
- Sperber, D. & Wilson, D. (1986). *Relevance: Communication and cognition*. Cambridge: Harvard University Press.
- Spradley, J. (1972). *Culture and cognition*. San Francisco.
- Stacy, A., Leigh, B. & Weingardt, K.R. (1997). An individual-difference perspective applied to word association. *Personality and Social Psychology Bulletin*, 23, (3), 229-239.
- Stanlaw, J. (1982). English in Japanese communicative strategies. In Kachru, B., *The other tongue: English across cultures* (pp.168-197). Urbana, Il: University of Illinois Press.
- Stanlaw, J. (1987). Color, culture, and contact: English loanwords and problems of color nomenclature in modern Japanese. Champaign-Urbana: University of Illinois.

- Stanlaw, J. (1992). For beautiful human life. In Tobin, J. (Ed.) *Re-made in Japan: Everyday life and consumer taste in a changing society*. J. Tobin. New Haven and London: Yale University Press.
- Stanlaw, J. (1997). Two observations on culture contact and the Japanese color nomenclature system. In Hardin, C.L. & Maffi, L., (Eds), *Color categories in thought and language*. New York: Cambridge University Press.
- Stefflre, V., Castillo V. & Morley, L. (1966). "Language and cognition in Yucatan: a cross-cultural replication." *Journal of Personality and Social Psychology*, 4: 112-115.
- Strauss, C. (1992a). *Models and motives*. In R. D'Andrade, R. & Strauss, C. (p. 1-20). *Human motives and cultural models*. Cambridge: Cambridge University Press.
- Strauss, C. (1992b). What makes Tony run? Schemas as motives reconsidered. . In D'Andrade, R. & Strauss, C. *Human motives and cultural models*. Cambridge: Cambridge University Press.
- Strauss, C. & Quinn, N. (1997). *A cognitive theory of cultural meaning*. Cambridge: Cambridge University Press.
- Sugito, S. (1989). Lexical aspects of the modernization of Japanese. In Coulmas, F. (p. 120). *Language adaption*. Cambridge: Cambridge University Press.
- Suzuki, T. (1975). On the twofold phonetic realization of basic concepts: In defence of Chinese characters in Japanese. (pp. 175-192). *Language in Japanese society: Current issues in sociolinguistics*. Tokyo: University of Tokyo Press.
- Suzuki, T. (1977). 'Writing is not language - or is it?' *Journal of Pragmatics*, 1: 407-420.
- Tada, M. (1983). *Utsurikawaru midori. Iro no saijiki*. Tokyo: Asahi shimbunsha.
- Takada, M. (1989). The development of Japanese society and the modernization of Japanese during the Meiji Restoration. In Coulmas, F. (Ed.) (p. 106). *Language adaption*. Cambridge: Cambridge University Press.
- Takahashi, M. (1996). *Asahi Shimbun*, 9. Tokyo.
- Takashi, K. (1990a). *A functional analysis of English borrowings in Japanese advertising, linguistic and socio-linguistic perspectives*. Graduate School. Washington, D.C.: Georgetown University.
- Takashi, K. (1990b). "A sociolinguistic analysis of English borrowings in Japanese advertising texts." *World Englishes* 9(3): 327-341.
- Tamaoka, K. (1991). "Psycholinguistic nature of the Japanese orthography." *Studies in Language and Literature (Matsuyama University)*, 11(1): 49-82.
- Tanaka, I. & Koike, K. (1982). *Japan color*. San Francisco: Chronicle Books.
- Tanigawa, S. (1983). *Iro no saijiki. Hitome de asobu Nihon no iro*

- Tannen, D. & Wallat, C. (1993). Interactive frames and knowledge schemas in interaction: Examples from a medical examination/interview. In Tannen, D. *Framing in discourse*. New York: Oxford University Press.
- Taylor, I. & Park, K. (1995). Differential processing of content words and function words: Chinese characters vs phonetic scripts. In Taylor, I. & Olson, D. (pp. 185-195). *Scripts and literacy: Reading and learning to read alphabets, syllabaries and characters*. Dordrecht: Kluwer Academic Publishers.
- Taylor, J. & MacLaury, R.E. (1995). *Language and the cognitive construal of the world*. Berlin, New York: Mouton de Gruyter.
- Taylor, J.R. (1995). *Linguistic categorization, prototypes in linguistic theory*. New York: Oxford University Press.
- The book of seasonal colors*. Tokyo: Asahi Shimbunsha.
- The Traffic Bureau, (2000). *Rules of the road*. Tokyo: Japan Automobile Federation.
- Tsunoda, W. (1988). "The influx of English in Japanese language and literature." *World Literature Today*, 62(3): 425-428.
- Tyson, R. (1994). *Korean color naming and Korean-English language contact: A study in linguistic variation and semantic change*. University of Arizona.
- Uchikawa, K. and R. Boynton (1987). "Categorical colour perception of Japanese observers." *Vision Research*, 27(10): 1825-1833.
- Uemura, R. & Yamazaki, K. (1943). *Nihon Shikimeji Taikan* [Dictionary of Japanese Colour Terms]. Tokyo: Kodori Shorin.
- Uemura, R. (1943). *Manyosenshoku no Kenkyu* [Studies in the Manyo dyes]. Tokyo: Kobunsha.
- Unger, J. (1987). *The fifth generation fallacy*. Oxford: Oxford University Press.
- Ungerer, F. & Schmid, H.J. (1996). *An introduction to cognitive linguistics*. London: Longman.
- Uno, S. (1991). *Japan chronic: Nihon Zenshi*. Tokyo: Kodansha.
- Vierach, W. & Budd, W-D. (1986). *English in contact with other languages, studies in humour of Broder Carsten on the occasion of his 60th birthday*. Budapest: Akadmiái Mlad M., 107-128.
- Weinreich, U. (1963). *Languages in contact: Findings and problems*. The Hague: Mouton & Co.
- Werner, O. & Schoepfle, G. (1987). *Systematic fieldwork: Foundations of ethnography and interviewing: Vol 1*. Newbury Park, CA: Sage Publications.
- Whorf, B.L. (1956). *Language, thought and reality: Selected writings of Benjamin Lee Whorf*. New York: Wiley.

- Wierzbicka, A. (1985a). "Different cultures, different languages, different speech acts." *Journal of Pragmatics*, 9: 145-178.
- Wierzbicka, A. (1985b). *Lexicography and conceptual analysis*. Ann Arbor: Karoma.
- Wierzbicka, A. (1990). "The meaning of color terms: semantics, culture, and cognition." *Cognitive Linguistics* 1: 99-150.
- Wierzbicka, A. (1996). *Contrastive sociolinguistics and the theory of 'cultural scripts': Chinese vs English*. Berlin, New York: Mouton de Gruyter.
- Wierzbicka, A. (1996). *Semantics primes and universals*. Oxford, New York: Oxford University Press.
- Wierzbicka, A. (1997). *Understanding cultures through their key words, English, Russian, Polish, German, and Japanese*. New York: Oxford University Press.
- Witkowski, S. & Brown, C. (1977). "An explanation of color nomenclature universals". *American Anthropologist*, 79:50-57.
- Witkowski, S. & Brown, C. (1978). "Lexical universals." *Annual Review of Anthropology*, 7: 427-451.
- Witkowski, S. & Brown, C. (1981). "Lexical encoding sequences and language change: Color terminology systems." *American Anthropologist*, 83: 13-27.
- Witkowski, S. & C. Brown, C. (1983). "Marking-reversals and cultural importance." *Language*, 59: 569-582.
- Woodworth, R. (1910). "The puzzle of color vocabularies." *Psychological Bulletin*, 7: 325-334.
- Wooten and Miller (1997). In *Color categories in thought and language*. Cambridge: Cambridge University Press.
- Wydell, T. N. (1998). What matters in kanji word naming: Consistency, regularity, or On/Kun-reading difference? In Kan, L.C. & Tamaoka, K. (Eds) (pp. 205). *Cognitive processing of the Chinese and Japanese languages*. Dordrecht, Kluwer Academic Publishers.
- Wydell, T.N., Butterworth, B. & Patterson, K. (1995). "The inconsistency of consistency effects in reading: The case of Japanese kanji." *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 21: 1155-1168.
- Wyszecki, G. & Styles, W.S. (1982). *Color science. Concepts and methods, quantitative data and formulae* (2nd edn.). New York: Wiley.
- Yamada, J. (1998). The time course of semantic and phonological access in naming kanji and kana words. In Kan, L.C. & Tamaoka, K. (Eds) (pp. 271). *Cognitive processing of the Chinese and Japanese languages*. Dordrecht: Kluwer Academic Publishers: 271.
- Yamada, T. (1983). *Kanji. Kodansha Encyclopedia of Japan*. 4: 141-143. Tokyo: Kodansha.

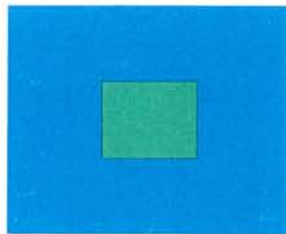
- Young, J. & Nakajima, K. (1970). *Learn Japanese: College text Vol II*. Honolulu: East-West Center Press.
- Zeelenberg, R., Shiffrin, R. & Raaijmakers, J.G.W. (1999). "Priming in a free association task as a function of associational directionality." *Memory and Cognition*, 27 (5): 956-961.
- Zollinger, H. (1976). "A linguistic approach to the cognition of color vision on man." *Folia Linguistica* 9: 265-293.

Appendices

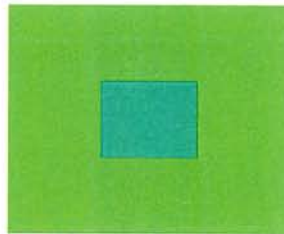
1. Appendix 3.1 Colour contrasts 'ao', 'midori' and 'ao-midori' (from Nishikawa [p.107]).
2. Appendix 3.2 Blue traffic light and green lawn (from Rules of the Road, the Traffic Bureau of the National Police agency [p.26]).
3. Appendix 3.3 "Green Light", 'Green Flashing Light' (from Rules of the Road, the Traffic Bureau of the National Police agency [p.25]).
4. Appendix 3.4 Roadsigns showing 'yellow', 'midori' and 'ao' backgrounds (from Nishikawa [p.90]).
5. Appendix 4.1 Word Association elicitation instrument.
6. Appendix 4.2 Oral Interview elicitation instrument.
7. Appendix 4.3 Appropriateness of 'ao' as a descriptor elicitation instrument.

原色版 8 色相の対比

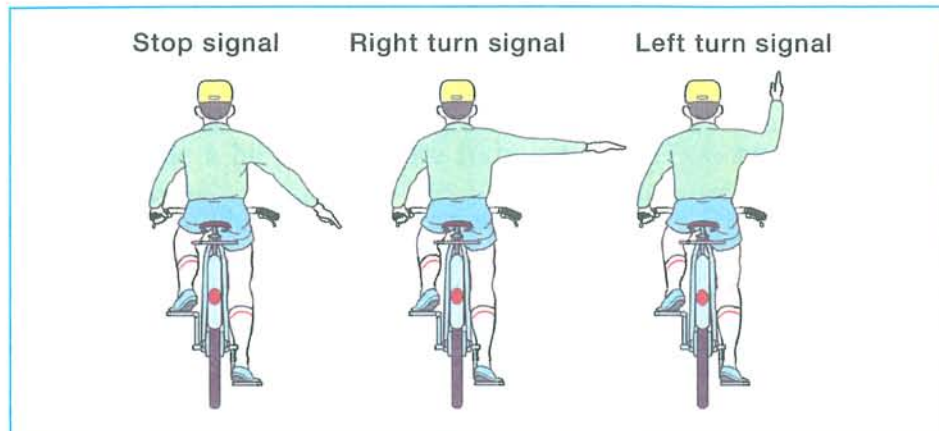
(A)



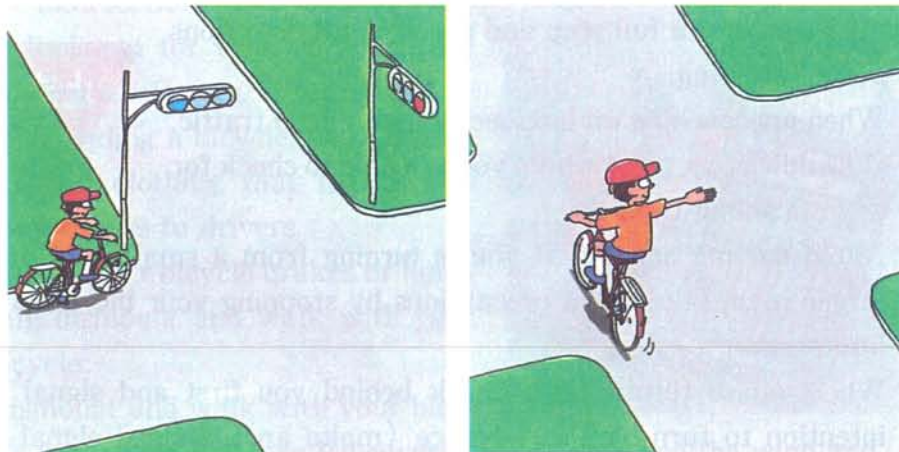
(B)



indicator if you have one). Stay as far over to the left as possible and slow to a safe speed. When turning, it's the cyclist's duty to watch out for pedestrians so as not to interfere with their movement.






- 4) For making a right turn, follow the procedures indicated below :
- If the intersection has a traffic light, first cross straight ahead to the other side of the intersection when the light turns green. Stop when you've finished crossing, and turn your bicycle to face in the right direction. Cross when the light turns green.
 - If the intersection doesn't have a traffic signal, check that no vehicle is approaching from behind, and signal your intention to turn well in advance. To signal your intention to turn right, extend your right arm straight, horizontally to the ground with your palm facing down, or use your direction indicator if you have one. Stay over as far to the left of the road and proceed straight across to the far side of the intersection. Turn the intersection slowly and with caution.



2-3. Traveling through intersections

- 1) Wait for the traffic light to turn green before you cross. If there's a traffic light with a sign reading "Traffic light for pedestrians and bicycles," then the cyclist must follow that light. The meaning of such signals for cyclists is as follows:

<p>Green light</p> 	<p>The bicycle may proceed straight or turn left. When turning right, cross the street first, change direction at that point, and wait for the traffic light to turn green.</p>
<p>Flashing green light</p> 	<p>The cyclist must not begin to cross. If the cyclist is approaching the intersection at a speed that would make it difficult to stop safely when the light begins to flash, he/she may proceed through with caution.</p>
<p>Red light</p> 	<p>The cyclist must not start to cross or move beyond the stopping line. If the cyclist has already begun to turn left at an intersection, he/she may proceed, even if the signal to the left is red. The cyclist who has already turned right at an intersection must stop at that point if the signal on the right is red.</p>

- 2) When you cross an intersection with no traffic light, etc., take the following precautions:
- When the intersection has a "Stop" sign as shown, the cyclist must come to a full stop and check in all directions before crossing.
 - When approaching an intersection with little traffic, slow down to a point where you are able to check for any oncoming traffic.
- Avoid darting across. If you're turning from a small road onto a larger road, take extra precautions by stopping your bicycle at the intersection.
- 3) When you're turning left, check behind you first and signal your intention to turn well in advance (make an L-shaped signal with your arm with your fingers pointing upwards, or use your direction



Appendix 3.3

"Green Light", 'Green Flashing Light' (from Rules of the Road, the Traffic Bureau of the National Police agency [p.25]).

警戒標識



指示標識



規制標識



APPENDIX 4.1
Word Association elicitation instrument.

お忙しい中、申し訳ありませんが、このアンケートに答えていただけたら、幸いに思います。
このアンケートは私の研究に使わせていただきたいと存じます。この研究は将来、言語習得向上に役に立たせたいと思っております。このアンケートは全部で7つの「連想ゲーム」からできております。恐れ入りますが、一つのゲームが終わりましたら、戻ったりしないで、次ぎへと進んでください。

尚、時間の制限はありませんので、好きなだけ時間をとってもけっこうですが、人と相談したりしないで、思い浮かんだアイデアを書いてくださるようお願い致します。

大変お手数ですが、ご協力お願い致します。

コンラン フランシス。2002年4月

Francis Conlan,

Edith Cowan University,

Perth.

もしよろしければ、次ぎの質問に答えていただけないでしょうか。

(お名前を教えていただかなくてもけっこうです)

男性の方ですか。女性の方ですか? 男性 女性 (まるをつけてください)

年齢層を教えてください。(まるをつけてください)

10代 20代 30代 40代 50代 60代 70代 80代

(日本での) ご出身はどちらですか? _____ 都道府県

どれぐらい日本を離れておられますか。 _____ 年

連想ゲーム (その1)

わくの中の漢字を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

犬

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

連想ゲーム (その2)

下の言葉を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

焼く

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

連想ゲーム (その3)

下の漢字を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

青

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____

連想ゲーム (その4)

下の言葉を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

ペルー

1 _____

2 _____

3 _____

4 _____

5 _____

連想ゲーム (その5)

下の言葉を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

ブルー

1 _____

2 _____

3 _____

4 _____

5 _____

連想ゲーム (その6)

下の漢字を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

ウィーン

1 _____

2 _____

3 _____

4 _____

5 _____

連想ゲーム (その7)

下の言葉を見るとどうのことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

グリーン

1 _____

2 _____

3 _____

4 _____

5 _____

連想ゲーム (その8)

下の言葉を見るとどういうことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

男

1 _____

2 _____

連想ゲーム (その9)

下の言葉を見るとどういうことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

男性

1 _____

2 _____

連想ゲーム (その10)

下の言葉を見るとどういうことを連想しますか？

深く考えないで、すぐに頭に入ってくるものをリストして下さい。

緑

1 _____

2 _____

3 _____

4 _____

5 _____

ご協力ありがとうございました。

APPENDIX 4.2
Oral Interview elicitation instrument.

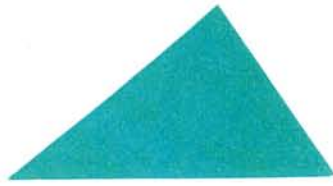


Image no. 2





Image no. 4

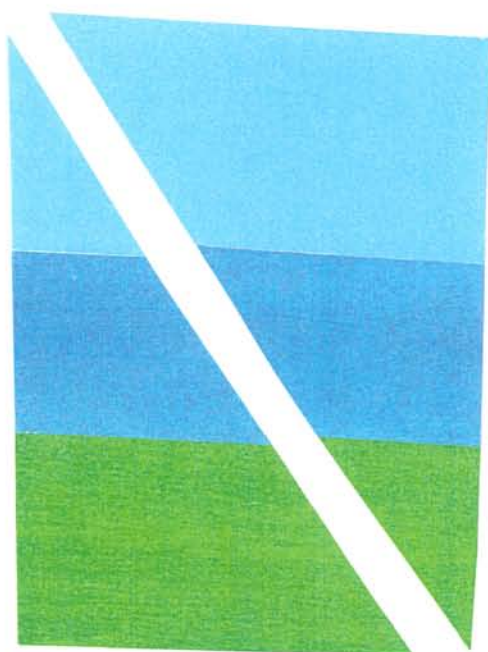


Image no. 5

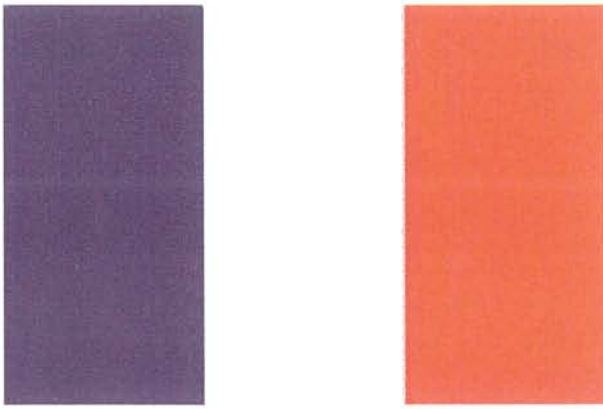


Image no. 6



Image no. 7





これはフランスの国旗です。簡単にこのデザインの説明をしてください。







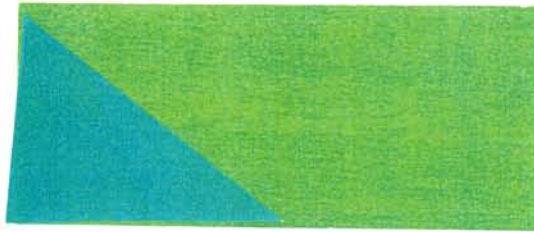




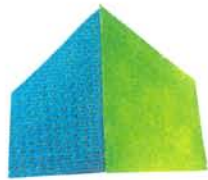
Image no. 14

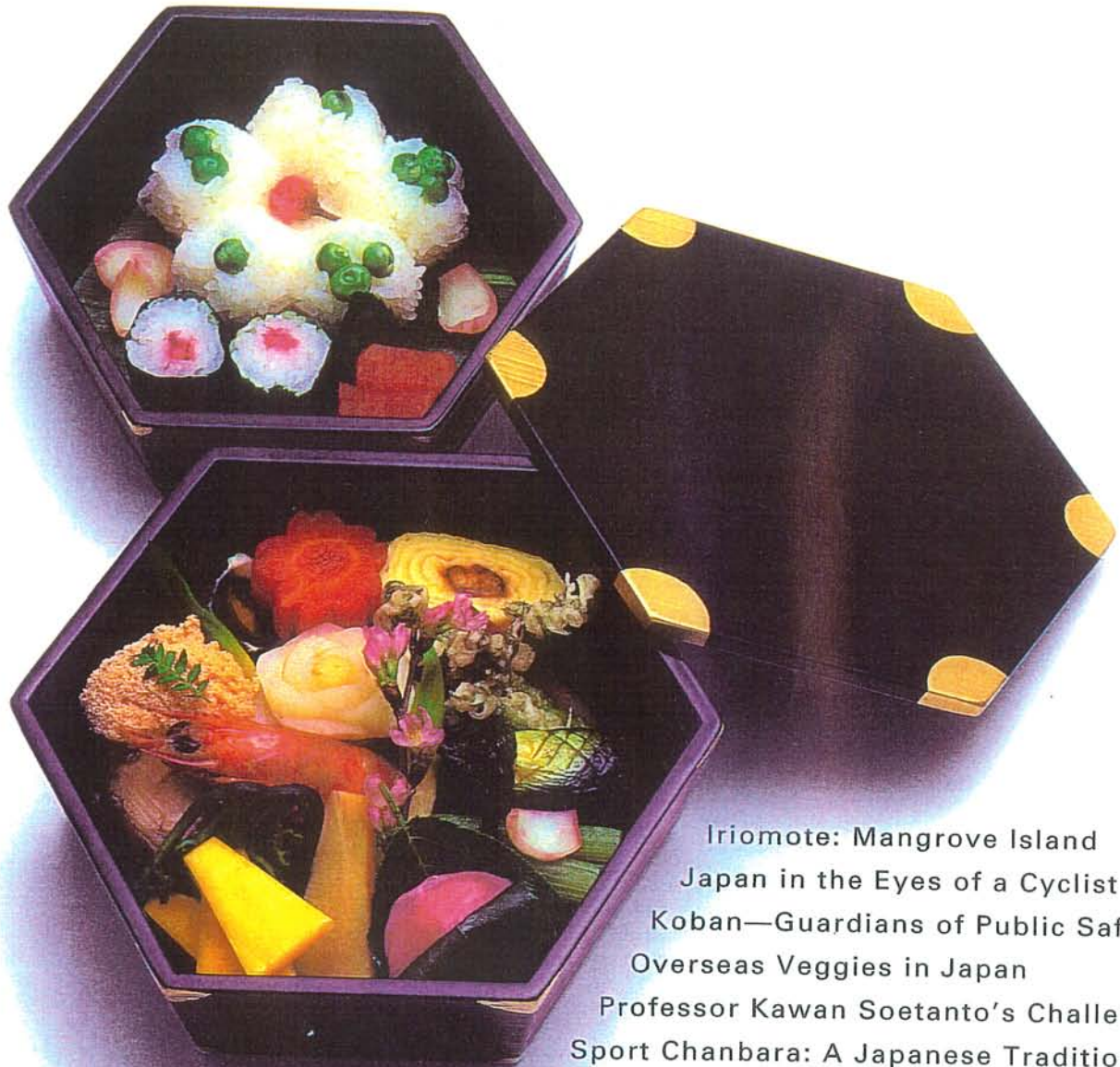


Image no. 15









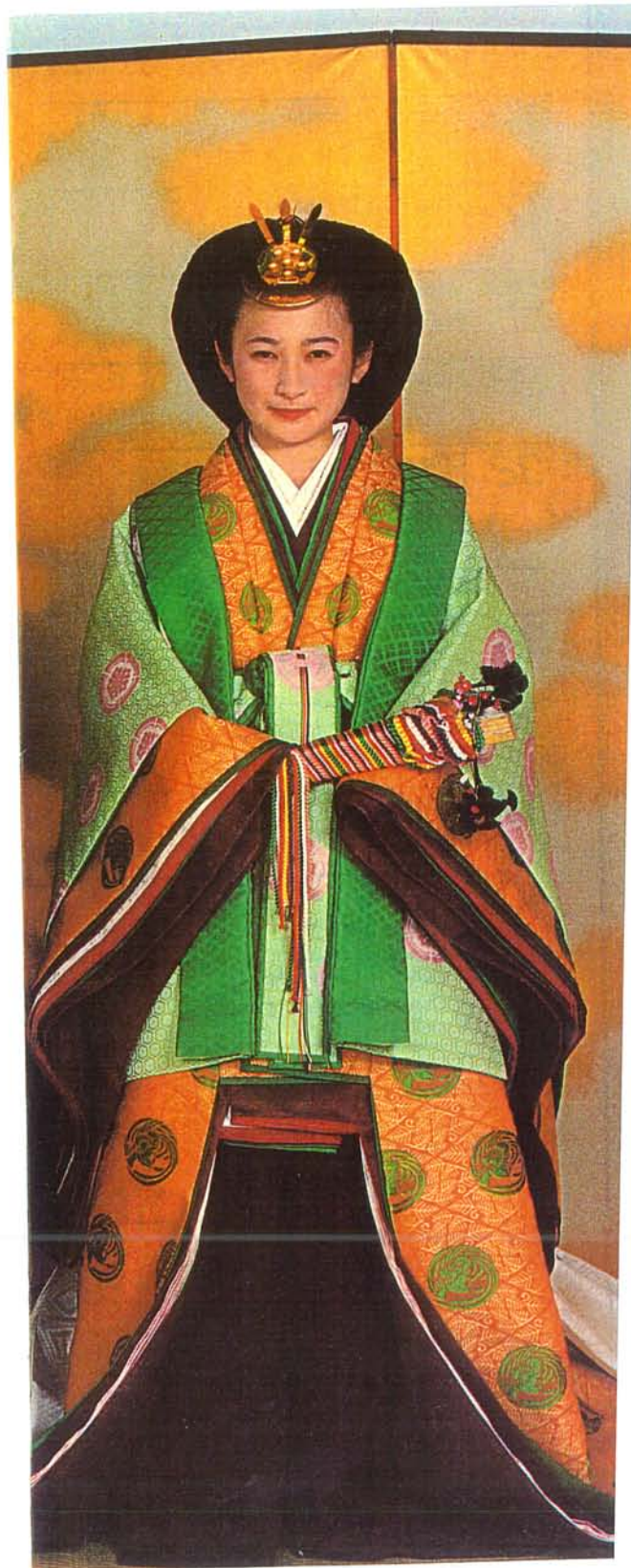
Iriomote: Mangrove Island
Japan in the Eyes of a Cyclist
Koban—Guardians of Public Safety
Overseas Veggies in Japan
Professor Kawan Soetanto's Challenge
Sport Chanbara: A Japanese Tradition?

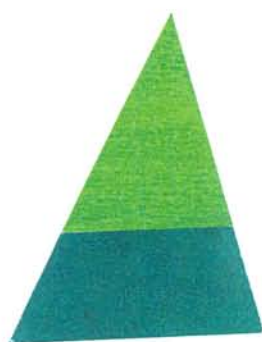
P E C I A L R E P O R T

Deregulation Creating New Japan















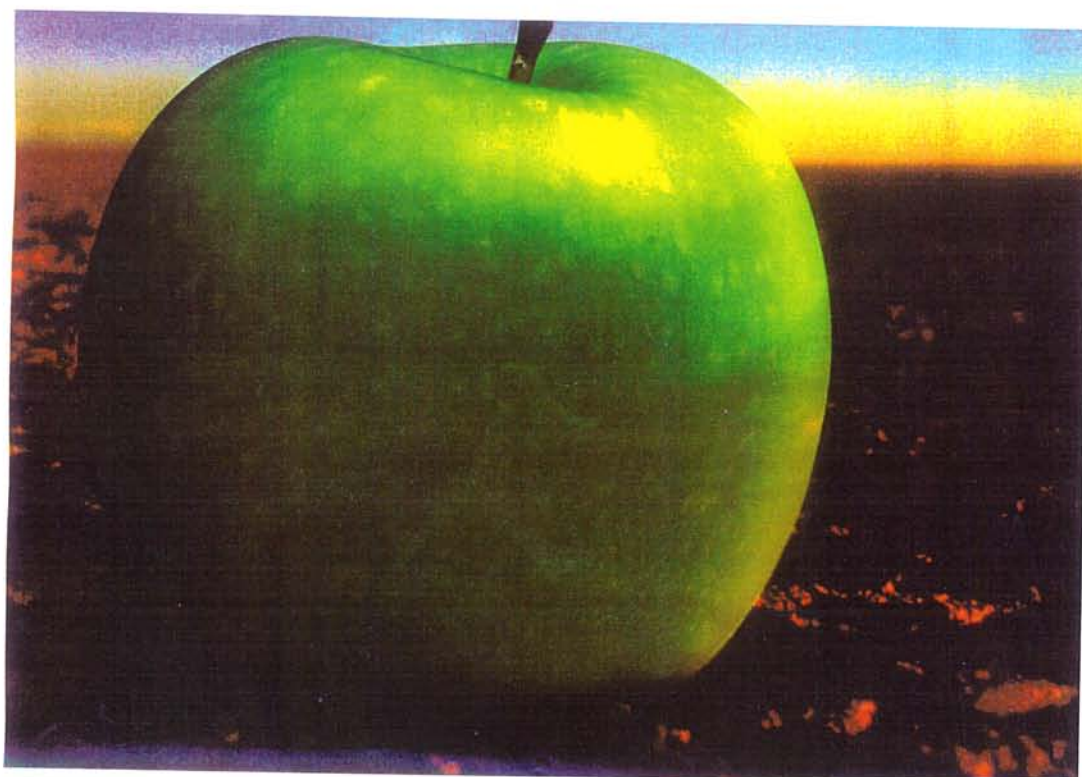


Image no. 27





Image no. 29



PACIFIC friend

WINDOW ON JAPAN

SEPTEMBER 1999 Vol.27 No.5

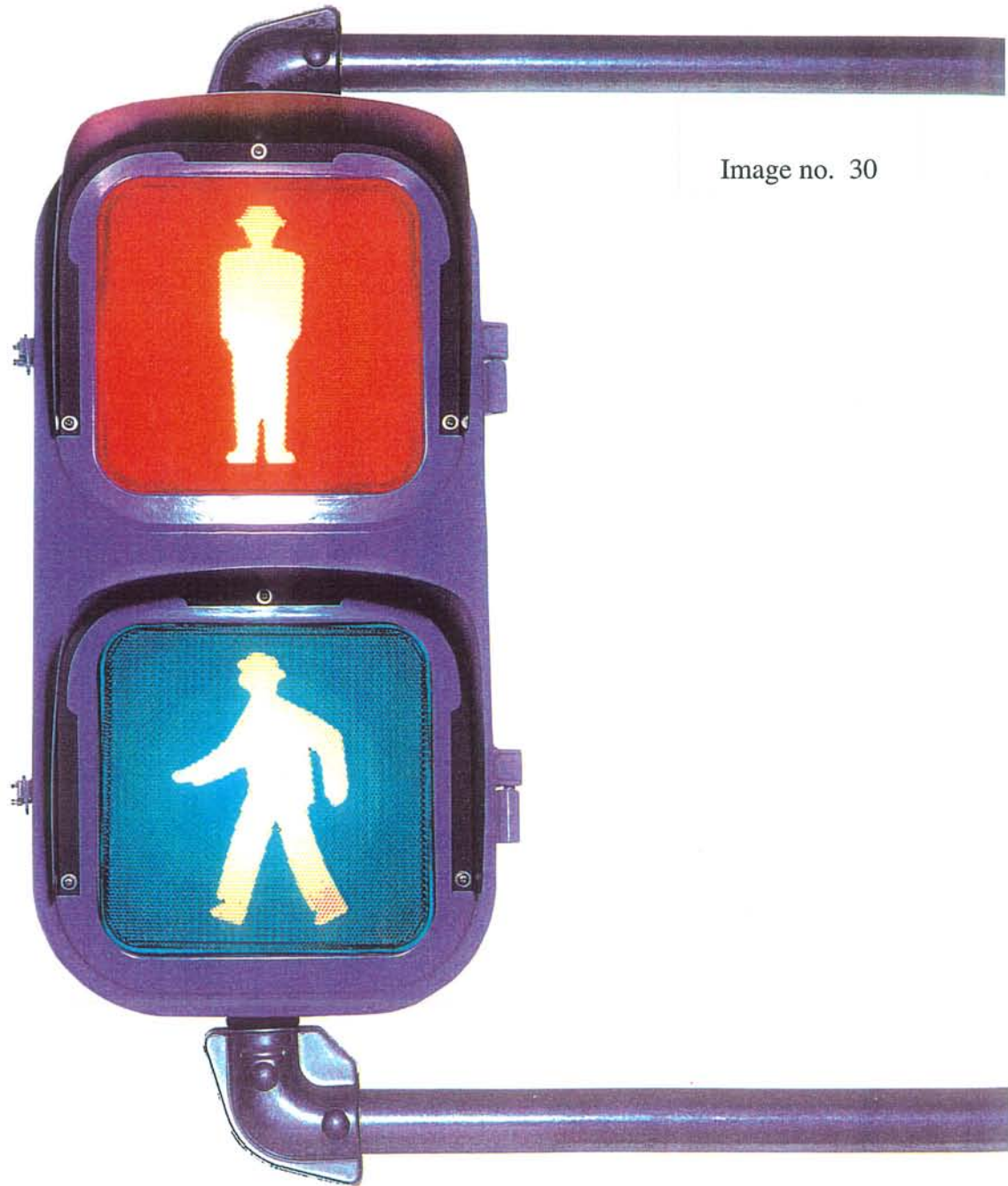


Image no. 30

SPECIAL REPORT

New Consumer Lifestyles

a m s • Asian Art Museum • Miwa



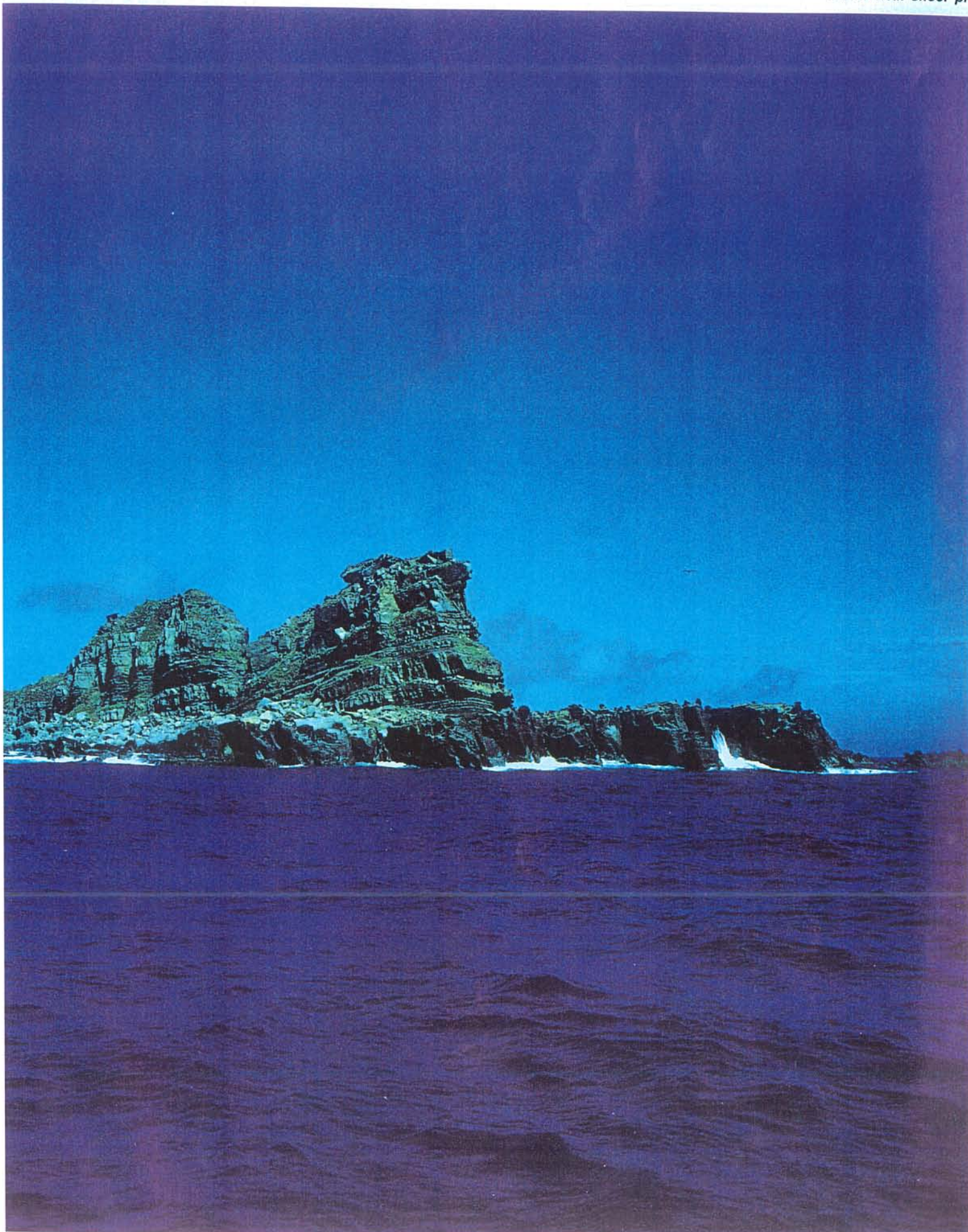
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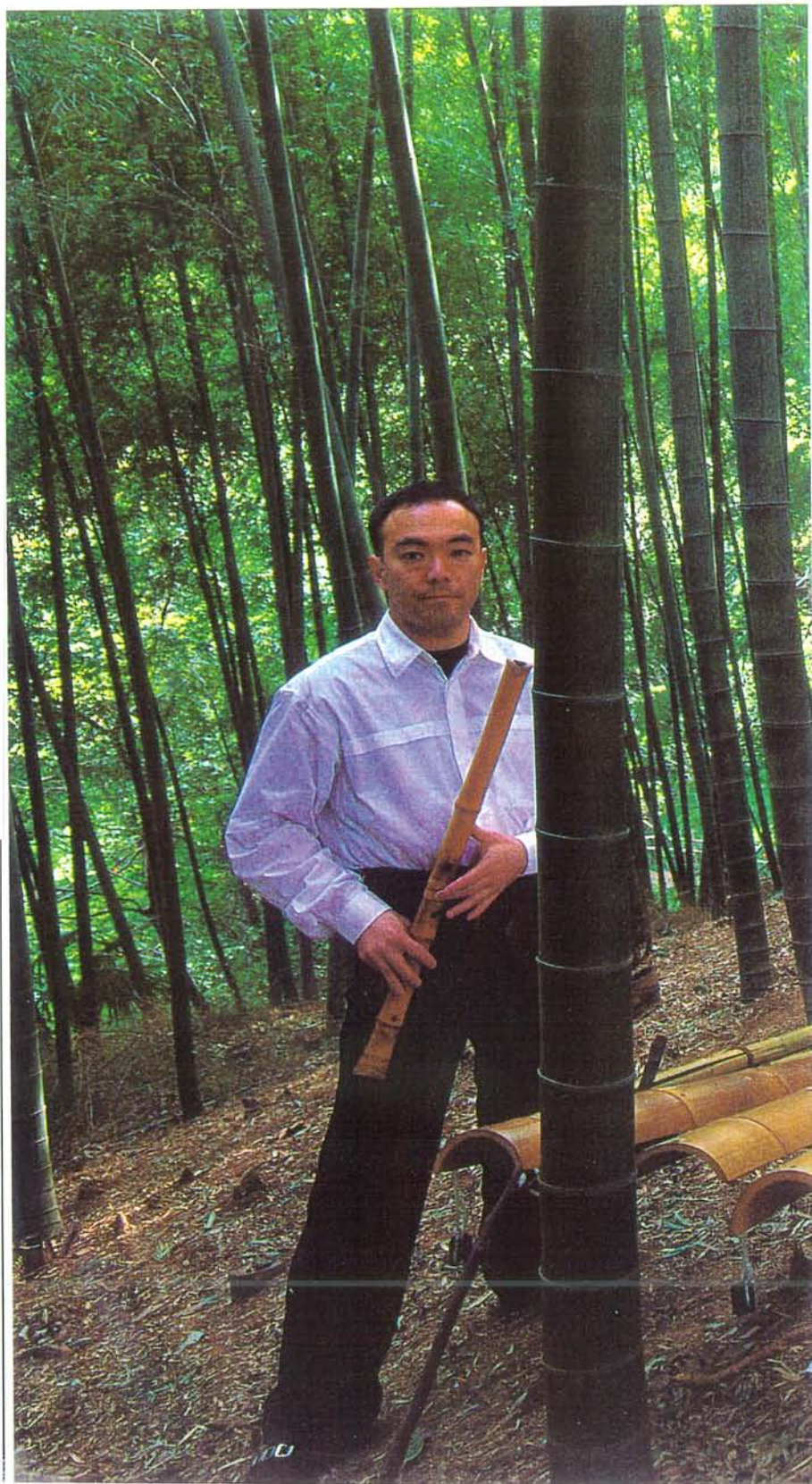




*Naka-no-Kamishima is
situated at 123 degree
longitude and 35
minutes and 12 minu
With an area of onl
ters, the islet cons
stone with sheer pr*

Image no. 34



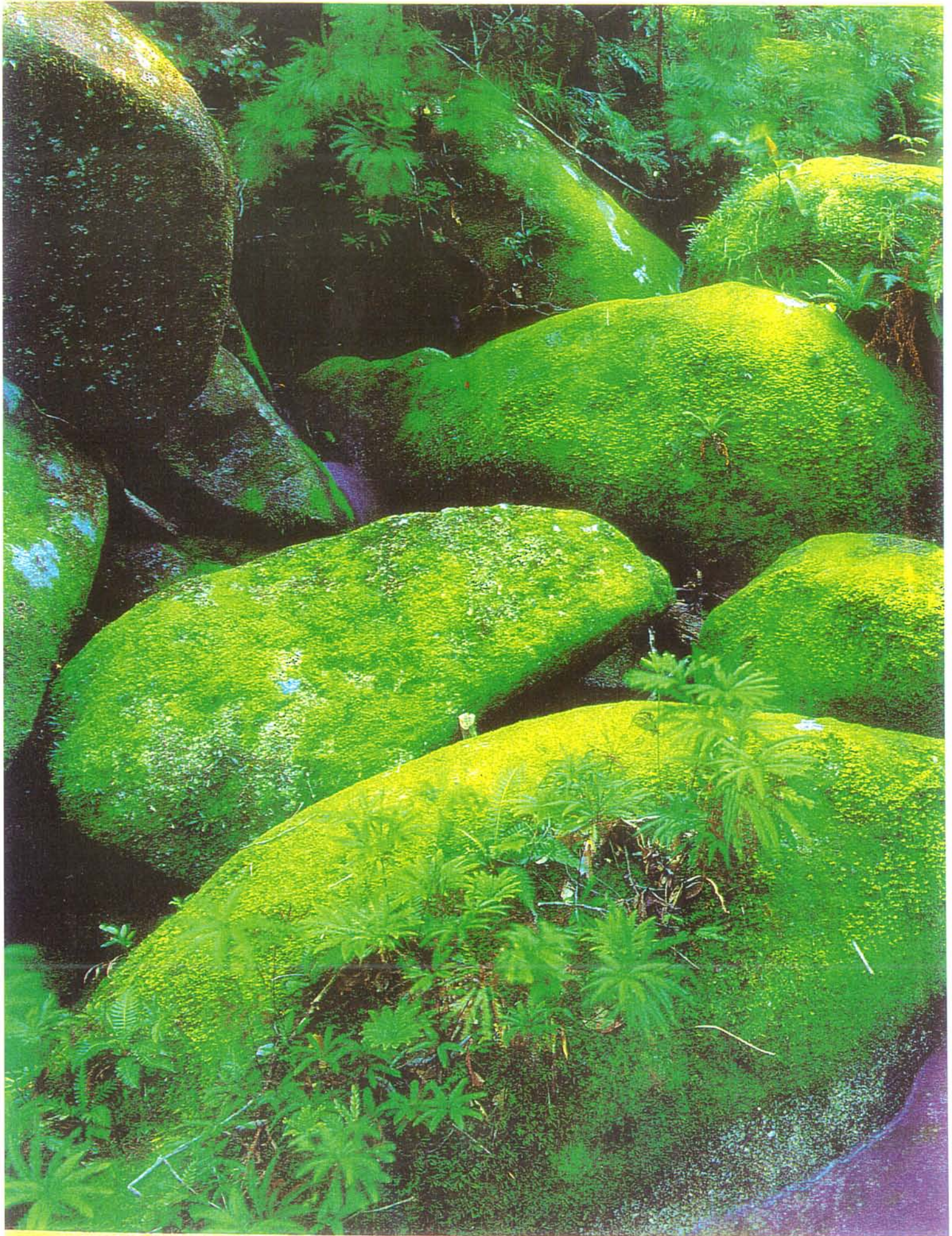


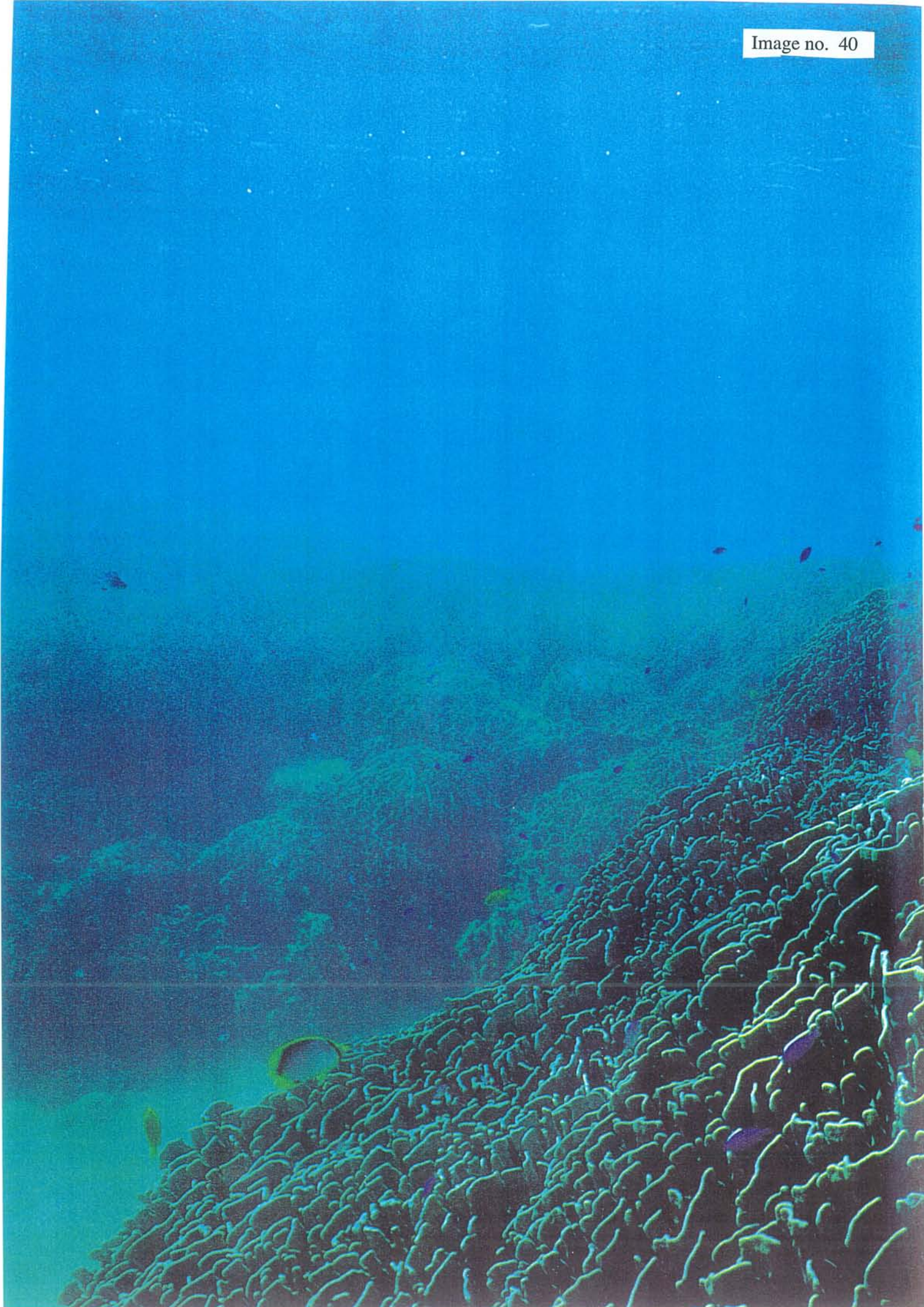


この絵の説明をしてください。









茗荷 Myoga

Myoga is "Japanese ginger." It gives off a unique scent and is also extremely hot. Myoga is most popular as a yakumi during summer.

生姜 Shoga

The strong sweet-and-sour taste and the earthen aroma of shoga (ginger) serves to lighten the scent of rawness accompanying fish or meat.

Shoga is also used as a home remedy for colds.

新生姜

Shin Shoga

This is young (lit. "new") shoga. Since ginger at this age is soft and its flavor milder, it is a welcome complement to all kinds of raw dishes.

木の芽 Ki-no-me

This is the leaf bud of a Japanese pepper tree and is perhaps Japan's representative spice. Ki-no-me imparts the marvelously regenerative scent of the forest and is used as an accent in salads.

しそ Shiso

The refreshing aroma and faint sharpness of shiso go well with seafood. Shiso is not used only as a spice but the whole leaf is also often served as one of the several items comprising a meal of tempura. The fruit of Shiso can also be eaten.

わさび Wasabi

This is Japan's horseradish. Wasabi has a very sharp sting and is an indispensable spice in sushi, sashimi, and other raw fish dishes. Fresh wasabi (ungrated) is very expensive, but its aroma is unbeatable.

みつ葉 Mitsuba

Mitsuba (Japanese wachervil, lit. "three leaves") is one of Japan's most popular spices along with shiso. It adds zest to a wide range of fresh produce in the root, leaf, and stalk families.



Photograph by Hisashi Miyaka

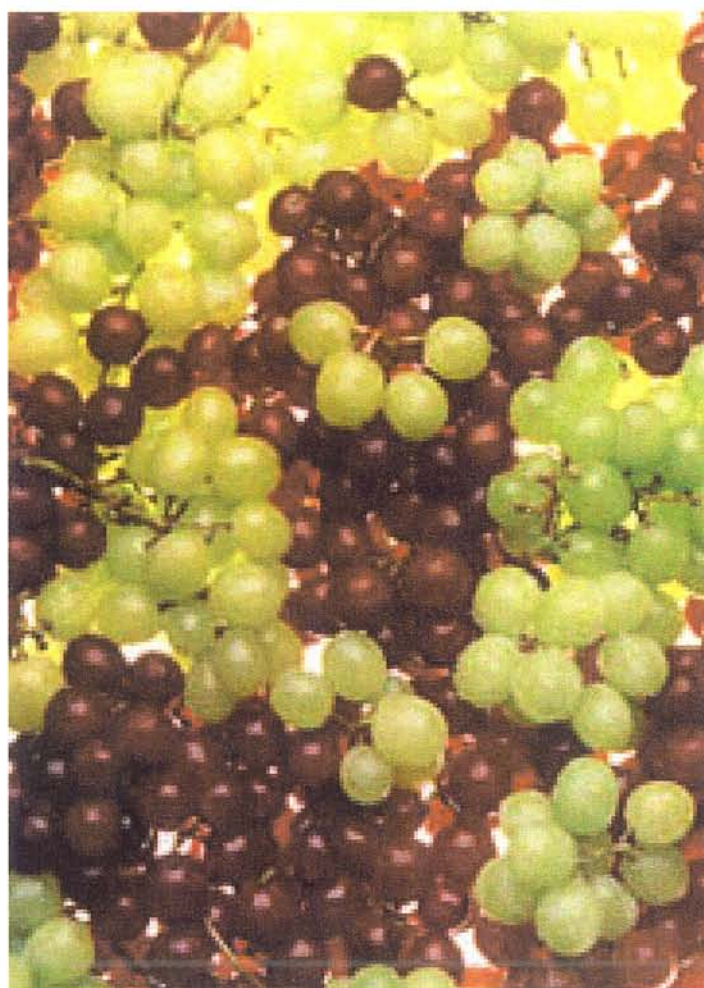


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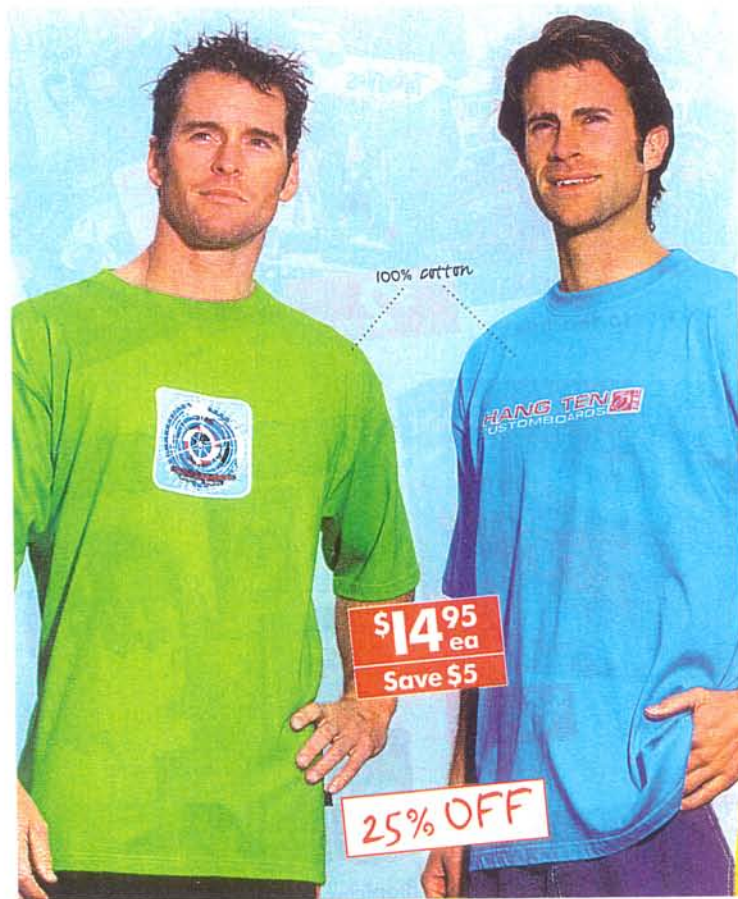
この絵の説明をしてください。





この絵の説明をしてください。





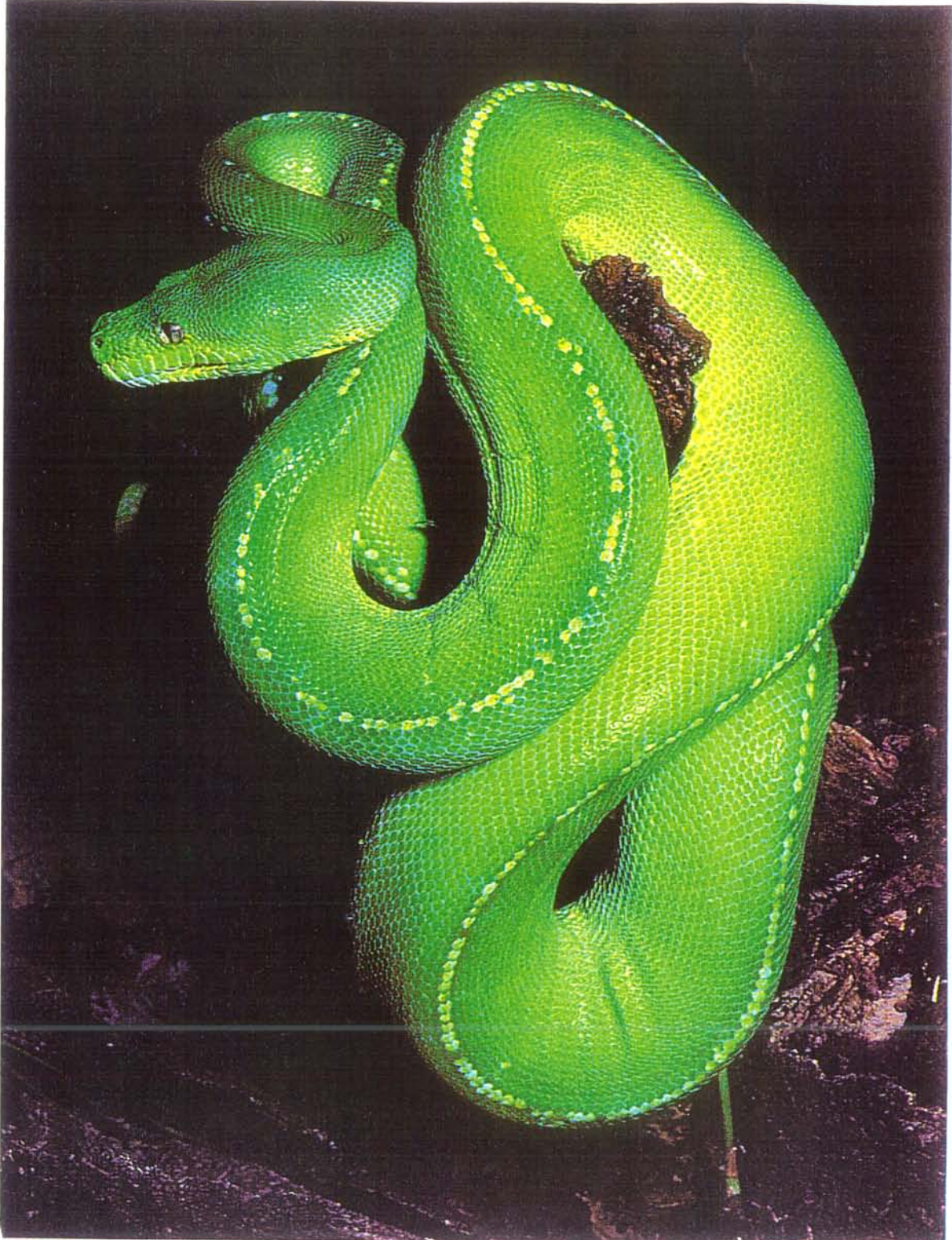


Image no. 49



● アオダイショウ



Image no. 51















Image no. 58

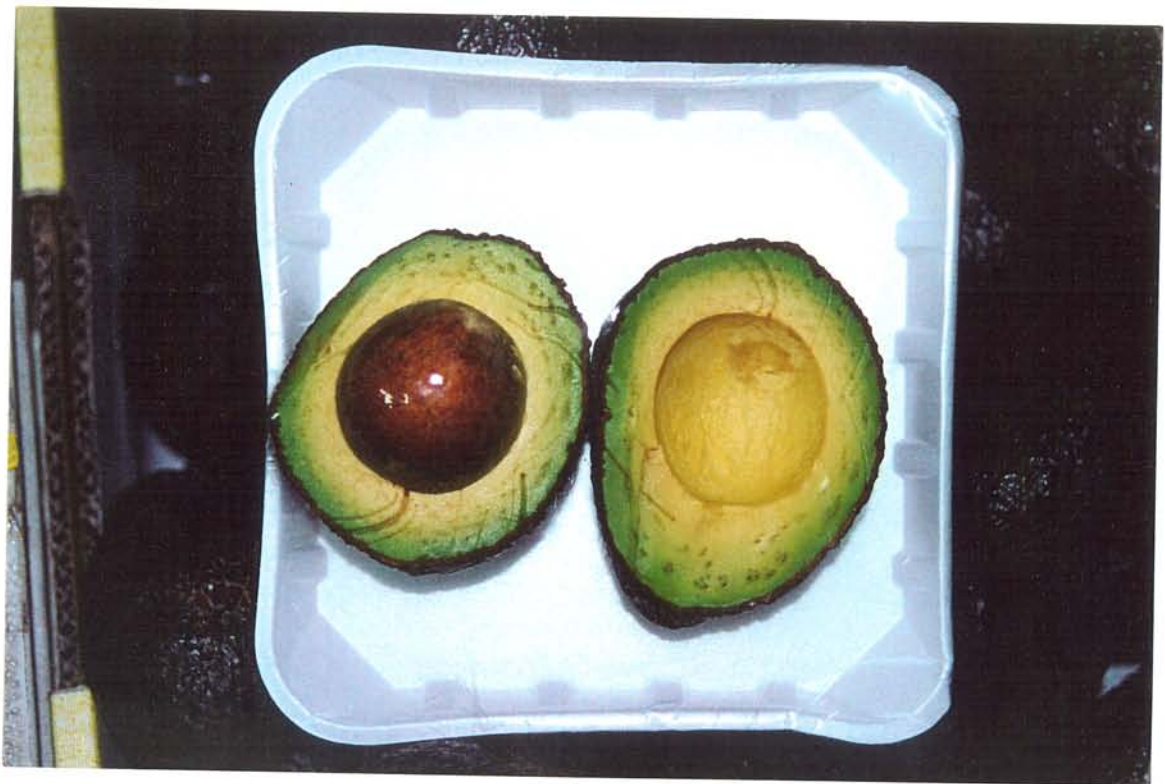




Image no. 60







Image no. 63



APPENDIX 4.3
Appropriateness of 'ao' as a descriptor
elicitation instrument.

お忙しい中、申し訳ありませんが、このアンケートに答えていただけたら、幸いに思います。
このアンケートは私の研究に使わせていただきたいと存じます。この研究は将来、言語習得向上に役に立たせたいと思っております。このアンケートは全部で四十の質問からできております。

尚、時間の制限はありませんので、好きなだけ時間をとってもけっこうです。

大変お手数ですが、ご協力お願い致します。

コンラン フランシス。2002年12月

Francis Conlan,

Edith Cowan University,

オーストラリア。

もしよろしければ、次ぎの質問に答えていただけないでしょうか。

(お名前を教えてくださいなくてもけっこうです)

男性の方ですか。女性の方ですか? 男性 女性 (まるをつけてください)

年齢層を教えてくださいませんか。(まるをつけてください)

10代 20代 30代 40代 50代 60代 70代 80代

(日本での) ご出身はどちらですか? _____ 都道府県

ご協力ありがとうございました。

空のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最も適している)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

海の^{かめ}亀のことを「青（い）」（または青々としている）と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

しそのことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。
「はい」だったら、その「青」という表現はどれくらい適している
と思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

のり
海苔のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

ぶどうのことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

けっかん

血管のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

もみの木のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

すなはま
砂浜のことを「青（い）」（または青々としている）と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とのもう一つの色をどう使い分けているのか述べて下さい。

たんぼのことを「青 (い)」(または青々としている) と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

こけ
苔のことを「青（い）」（または青々としている）と呼んでもいい時
がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適している
と思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その
理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明するこ
とが可能な場合は、それは何色でしょうか。「青」の表現とその
もう一つの色をどう使い分けているのか述べて下さい。

お日さまのことを「青（い）」（または青々としている）と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

葉っぱのことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

わかめのことを「青（い）」（または青々としている）と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

あざ

痣のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている)以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とのもう一つの色をどう使い分けているのか述べて下さい。

交通信号のことを「青 (い)」(または青々としている) と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

へび
蛇のことを「青 (い)」(または青々としている) と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

山のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

草原のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている)以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

野菜のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている)以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

目のことを「青（い）」（または青々としている）と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

かび

黴のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とのもう一つの色をどう使い分けているのか述べて下さい。

りんごのことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

海のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれぐらい適していると思
いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その
理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明するこ
とが可能な場合は、それは何色でしょうか。「青」の表現とその
もう一つの色をどう使い分けているのか述べて下さい。

森のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている)以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とのもう一つの色をどう使い分けているのか述べて下さい。

竹のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

虫のことを「青 (い)」(または青々としている)と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている)以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

かえる

蛙のことを「青（い）」（または青々としている）と呼んでもいい
時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「はい」だったら、「青」という表現はどれぐらい適
していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

もし答えが「はい」だったら、それはどんな時にそういうのでしょ
うか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明するこ
とが可能な場合は、それは何色でしょうか。「青」とそのもう一
つの色をどう使い分けているのか 述べて下さい。

バナナのことを「青 (い)」(または青々としている) と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「はい」だったら、「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

もし答えが「はい」だったら、それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明が可能な場合は、それは何色でしょうか。「青」とそのもう一つの色をどう使い分けているのか 述べて下さい。

しばふ
芝生のことを「青（い）」（または青々としている）と呼んでもいい
場合がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「はい」だったら、「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

もし答えが「はい」だったら、それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

落ち込んだ状態を「青（い）」（または青々としている）という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

寒いという状態を「青 (い) 」 (または青々としている) という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い) 」 (または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

ひげをそった後の状態を「青 (い) 」 (または青々としている) という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれぐらい適していると思いますか。

1 2 3 4 5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い) 」 (または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

落ち着いた状態を「青（い）」（または青々としている）という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

爽やかという気持ちを「青（い）」（または青々としている）という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次のページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

安心という気持ちを「青（い）」（または青々としている）という言葉で表現してもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

木のことを「青 (い) 」 (または青々としている) と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。
「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い) 」 (または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

水のことを「青 (い) 」 (または青々としている) と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もきしている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い) 」 (または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

顔のことを「青（い）」（または青々としている）と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。
「はい」だったら、その「青」という表現はどれくらい適している
と思いますか。

1 2 3 4 5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

若者のことを「青（い）」（または青々としている）と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれくらい適していると思いますか。

1

2

3

4

5

(1=最もできている)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青（い）」（または青々としている）以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とそのもう一つの色をどう使い分けているのか述べて下さい。

かも

鴨の頭のことを「青 (い)」(または青々としている)と呼んでもいい時がありますか？

はい、あります

いいえ、ないです

(まるをつけてください。)

もし答えが「いいえ」だったら、次ぎのページに進んで下さい。

「はい」だったら、その「青」という表現はどれぐらい適していると思えますか。

1 2 3 4 5

(1=最も適している)

(5=全く適していない)

それはどんな時にそういうのでしょうか。なぜそういうのか、その理由を述べて下さい。

もし「青 (い)」(または青々としている) 以外の色名で説明することが可能な場合は、それは何色でしょうか。「青」の表現とのもう一つの色をどう使い分けているのか述べて下さい。
