

INTERACTION OF PHONOLOGY AND SEMANTICS IN TAIWANESE NAMES – AN OPTIMALITY THEORY APPROACH

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Abstract

Past literature on Chinese names were always based on sociolinguistics point of view. This paper, however, aims to take cognitive approach to focus on issues relating to phonology and semantics in Taiwanese' names, and to study how phonological and semantic factors interact with each other. We adopt Optimality Theory as the framework and propose six constraints. These constraints include: (1) Final characters avoid low tone; (2) Names avoid conflicting context; (3) Final characters avoid siyin; (4) Characters with bad meanings are disfavored; (5) Names that do not specify gender are disfavored; and (6) Names homophonic to bad meanings are disfavored. The result shows that semantic constraints are ranked higher than phonological ones. The ranking also sheds light on how cognitive concepts, such as metaphor and metonymy, are reflected in names.

1. Introduction

Naming is very significant in Taiwan society because names not only reflect social expectations but serve as first expression. They are important of several reasons. First, they stand for the social valuation and expectation for an individual. Parents always name their children by good meaning or wishes they hope children to attain. Second, they reflect the cognition behind people's naming favorites. Due to the fact that everyone wants his name to be good and pleasant, we believe a large-scale study of names will reflect the cognitive preference of phonology and semantics on names. This paper discusses what kinds of names are preferred, and what cognitive principles lies behind these names.

Many researches about names in Western and Chinese society are from social and cultural point of views; however, few of them discuss issues concerning to phonology and semantics, such as perception, production, connotation and gender difference. We believe that name is far from merely a social ritual or activity; more considerably, it reflects particular mental and cognitive inclination. This paper, therefore, aims to study how phonology and semantics interact with each other in Taiwanese' names, and how cognition is represented in names.

We adopt Optimality Theory (Prince and Smolensky, 1993) (OT, hereafter) as the theoretical framework. One of the core ideas of OT is that every grammar in language is a system of conflicting forces. These conflicting forces together motivate languages to behave the way they are. OT manages to put these factors, called constraints, in a hierarchical ranking. The ranking excludes undesirable candidates and filters the probably best output. Hence, what OT explains is the probability of language behaviors, not the absolute one. It is the same story for names. No sets of rules can predict the exact preference of names. This is why OT could, and should be applied to

provide insights of the ranking of cognitive constraints in names.

In this paper we propose the following constraints.

(1) Final characters avoid low tone. (* Low tone)

Lakoff and Johnson (1980) has claimed the metaphor “GOOD IS UP; BAD IS DOWN” is rooted in human’s cognition. This oriental metaphor is reflected in almost every aspect of human’s life: emotion, social status, health, conscious, and of course, the acoustic perception. By applying this metaphor to tones, we want to know whether final characters of names prefer high tones, that is, first and second tone.

(2) Names avoid conflicting context. (* Conflicting context)

Xu (1994) argues that tones are more clearly distinguished in compatible contexts than conflicting contexts. Sometimes tones are even twisted in conflicting contexts because the ending and beginning value of two adjacent tones are too diverse. We expect our data to support the idea that names are more prone to compose compatible contexts.

(3) Final characters avoid siyin. (* Siyin)

In Chinese phonology, two types of rhyme are classified according to vowel components —hongyin and siyin. Hongyin is the sound symbolism of wideness and strength while siyin of weakness. We will discuss whether hongyin is more favored, and further look for acoustic or biological explanations.

(4) Characters with bad meanings are disfavored. (* Bad meaning)

Semantics is indispensable to names, especially the connotation of each character. We hypothesize that connotation plays a dominate role in naming, and all characters in names have good connotation.

(5) Names that do not specify gender are disfavored. (* No specific gender)

Gender difference of characters is of importance as well. Traditional society likes names which clearly convey masculine and feminine implication. However, more and more names seem to have characters not specific to gender stereotypes.

(6) Names homophonic to bad meanings are disfavored. (*Homophonic to bad meaning)

While a set of sound has more than one correspondence in form, it is a homophonic pair. Liao (2000) suggests that people avoid names homophonic to bad or common things. Names homophonic to bad meaning will activate negative association. This issue will be discussed to see how sounds and meaning influence each other.

With these constraints in mind, we hope to propose a model that can explain the ranking of names.

2. Literature review

Optimality Theory is a framework that reflects universality. Its central claim is every language differs in the ranking of constraints. Its idea on hierarchical ranking can explain all language differences within one set of universal constraints, and also the mental function of human’s cognition. Though OT is developed by phonologists, it is also applied to syntax, computational linguistics, cognitive linguistics and language

acquisition. (Kager 1999, Jason, 1997)

Liao (2000) has systematically studied Taiwan-Chinese personal names, nicknames and English names. From a sociolinguistic view, Liao proposes nineteen rules that dominate the naming process, and one of which about phonology is stated as “Easy to write, recognize and pronounce.” She points out that some parents prefer names which could be pronounced both in Mandarin Chinese and South Min. Other rules regarding to semantics include “Names after a famous or memorable contemporary, historical” or fictional figure” and “Having the name to bear the parent’s expectation about the child.”

The 21 Seiki Kenkyukai (2000) examines Chinese names and concludes that parent’s expectations and wishes are often coded in children’s names. For examples, if they hope children to be successful, they choose characters like “昇”(sheng1), “登”(deng1) and “富”(fu4); if they want children to be healthy, they use “安”(an1), “康”(kang1), and “吉”(ji2).

Wilson (1998) studies the meaning of names in Western Europe. He usefully points out that names are not merely words. Instead, names embed each individual and each family in a historical milieu and reflect a deep continuity in each society. In western society, names are identification of people’s religion, social status and family background.

3. Method and Data

3.1 Method

Statistic analysis is required and crucial to our discussion. Due to our hypotheses with reference to the distribution of tones and rhymes, quantitative evidence is the basis of our interpretation. In addition, we adopt OT to explain the interaction of phonology and semantics. Naming is a complex process and no set of rules could absolutely predict it. Therefore, OT is employed to explain the most probabilistic trend.

3.2 Data

The scope of our data is two-character given names of Taiwanese. The data is randomly selected from Telephone Book of Kaoshing City, with totally 1449 names collected. We first control the surnames as “陳”(chen2) and “林”(lin2), since they are the commonest surnames in Taiwan, and could be reasonably assumed to have more list items than other surnames. Next, we pick up first characters of the given names due to their majority and popularity. The following is the layout:

Table 1

Tone	Characters	Numbers
First	安(an1) , 秋(ciu1) , 光(guang1)	349
Second	明(ming2) , 宏(hong2)	389
Third	永(yong3) , 雅(ya3) , 敏(min3)	348
Forth	秀(sie4) , 俊(jyun4)	363
Total		1449

As for the second character of the given names, it depends on what we collect from the Telephone Book. Once the surnames and first characters of the given names are decided, we could consequently put more emphasis on the choice of second characters with

better control.

4. Results and discussion

4.1 Final characters avoid low tone (*Low tone)

Orientational metaphors are systemically structured in humans' cognition. For example, we have HAPPY IS UP, HAVING CONTROL IS UP, and HIGH STATUS IS UP. These spatial orientations arise because our body and physical environment function in the this way: people erect when healthy and lie down when sick; the level of a substance goes up when something is added to it and drops down when something is taken away from it (Lakoff and Johnson, 1980). All of these metaphors are deeply rooted in human nature's cognition, and it is prevalent in life experience and around our body. In addition to biological explanations, culture also conveys the identical concept. In Taiwan society, we adopt up-and-down spatial relation to mark good and bad. For instance, we have "jia-shang" (A plus) and "jia-sia" (A minus) to grade students' assignment; we have idioms like "ren-iou-wang-shang-kan, bu-iou-wang-shang-kan" (People should look up, not look down on.) to refer that people should look up to catch up anything valuable.

The metaphor "GOOD IS UP; BAD IS DOWN" is a concept reflected in almost every aspect of humans life: emotion, social status, health, conscious, and of course, the acoustic perception. Sound is often regarded as an indicator of a person's health and spirit. If a person pronounces high, loud and clear sounds, people are prone to think he is a high-spirited status; on the other hand, if a person speaks in low-pitched sounds, people think that he is in a bad mood or occupied by something else his mind. Chinese has four tones. According to Chao (1980), the first tone is a high-high tone, marked as 55; the second tone is a mid-high tone, marked as 35; the third tone is mid-low-high tone, marked as 214; and the fourth tone is a high-low tone, marked as 51. These numbers stand for the beginning and ending value of each sound, estimated by average sound levels. Ending at the highest value 5, the first and second tones are categorized as high tone; ending at the lowest value 1, the fourth are categorized as low tone. As for the third tone, although Chao claims its pattern as 214, it is actually uttered as 213 or 212 (Fon, 1997). No matter the ending tone is 2 or 3, it belongs to low tone rather than high tone.

Based on the 1449 names collected, the distribution of tones are as follows:

Table 2

	Tokens	Percentage
First tone	397	27.3 %
Second tone	543	37.6%
Third tone	121	8.3%
Fourth tone	388	26.8%
Total	1449	100%

The pattern for high and low tones is:

	Tokens	Percentage
High tones	940	64.9%
Low tones	509	35.1%
Total	1449	100%

Roughly 65% of names have high tone as final characters. This means that people unconsciously tend to choose characters with high tones for their children's names¹. Especially the second tone, a rising tone, is particularly prevalent as the final character. We suggest the reason may be that in terms of sound production, high tones are easier to pronounce while we call out someone's name, and rising tones associate names and peoples in a good situation. The tendency for high tone in final characters demonstrates that the "GOOD IS UP" metaphor is reflected by human's auditory sense.

*4.2. Names avoid conflicting context (*Conflicting context)*

When characters are conjoined together, the tones would influence each other, especially in running speech. Xu (1994) studies coarticulated tones and finds that the articulation of tones depends on the nature of tonal context. He distinguish two types of contexts: (1) a compatible context is an environment in which adjacent characters have similar values along the phonetic dimension, and (2) a conflicting context is an environment in which adjacent characters have very different values along the phonetic dimension. Xu suggest that in a compatible context, the deviation is relatively minor and tones are basically maintained, while in a conflicting context, the deviation is much greater and tones are easily distorted. As for perception, tones are easier to be identified in compatible context and more difficult in conflicting contexts.

There are totally sixteen tone combinations. Becasue Xu does not clearly define under what condition a compatible and conflicting context will be composed, we decide that once the value contrast is more than one level, a conflicting context is made.

Table 3

Type	Adjacent Tones	Type	Adjacent Tones
Compatible context	1 (55) 1 (55)	Conflicting context	1 (55) 2 (35)
	1 (55) 4 (51)		1 (55) 3 (214)
	2 (35) 1 (55)		2 (35) 2 (35)
	2 (35) 4 (51)		2 (34) 3 (214)
	3 (212) ² 2 (35)		3 (212) 1 (55)
	3 (212) 3 (214)		3 (212) 4 (53)
	4 (53) ³ 2 (35)		
	4 (53) 3 (214)		4 (53) 1 (55)
			4 (53) 4 (51)

¹ To demonstrate first tone and second tone do not necessarily have prevalence in other genre, we have examined 1186 Chinese characters by random selection. We found that the distribution of four tones is as follows: 20.4% for first tone, 25% for second tone, 20.3% for third tone and 34.3% for fourth tone. This examination shows that first tone and second tone don't have an preponderance as they do in names.

² According to Fon (1997), the third is realized as 212 or 213 when followed by another tone. Here we follow Fon's study because that is the real realization in oral conversation.

³ According to Fon (1997), the fourth tone is realized as 53 rather than 51 when followed by another tone.

In the following, we will discuss each tone by details.

4.2.1 First tone as first character

We have controlled the first character of given names as “安”(an1), “秋”(ciu1) and “光”(guang1), and totally 349 tokens are collected. The tonal distribution of the second character is as follows:

Table4

	Tone of following characters	Tokens	Percentages	Context Type
安(an1), 秋(ciu1), 光(guang1)	First	89	25.5 %	Compatible
	Second	143	41 %	Conflicting
	Third	34	9.7 %	Conflicting
	Fourth	83	23.8 %	Compatible

Compatible context of character combinations occupies 49.3% and the conflicting context 50.7 %. This means first tone shows no preference for compatible or conflicting tonal context. What is noteworthy is that second tone has a dominate preference, even though it leads to a conflicting context with first tone.

4.2.2 Second tone as first character

We have set first character of given names as “明”(ming2) and “宏”(hong2), with totally 389 tokens collected. The tonal distribution of the second character is:

Table 5

	Tone of following characters	Tokens	Percentages	Context Type
明(ming2), 宏(hong2)	First	111	28.5 %	Compatible
	Second	122	31.4 %	Conflicting
	Third	34	8.7 %	Conflicting
	Fourth	122	31.4 %	Compatible

The result is that compatible context occupies 59.9%, roughly 60% of character combinations. The situation is slightly different from the case of first tone as first character. The chance of each tone to follow second tone seems more equal (28.5%, 31.4%, 31.4%), except for third tone, a tone more difficult to pronounce in nature. It is reasonable to assume that second tone is more acceptable to any other tones while the preference for compatible context also maintained.

4.2.3 Third tone as first character

We have set the first character of given names as “永”(yong3), “雅”(ya3) and “敏”(min3), with 348 tokens collected. The tonal distribution of the second character is:

Table 6

	Tone of following characters	Tokens	Percentages	Context Type
永(yong3), 雅(ya3), 敏(min3)	First	102	29.3 %	Conflicting
	Second	126	36.2 %	Compatible
	Third	19	5.5 %	Compatible
	Fourth	101	29 %	Conflicting

Conflicting context occupies the majority of tonal coarticulation (58.3%). Although second tone has the highest frequency 36.2%, it is still overwhelmed by first and forth tone, with which conflicting context is produced.

4.2.4 Forth tone as first character

We have set the first character of given names as “秀”(sie4) and “俊”(yjun4), with 363 tokens collected. The tonal distribution of the second character is:

Table 7

	Tone of following characters	Tokens	Percentages	Context Type
sie, yjun 秀, 俊	First	95	26.2 %	Conflicting
	Second	152	41.9 %	Compatible
	Third	34	9.4 %	Compatible
	Fourth	82	22.5 %	Conflicting

In the 363 tokens data, compatible context has 51.3%. This figure is not significant since there is only half chance for compatible context. Although second tone again has the largest proportion of distribution, it is still outnumbered by first and fourth tone.

4.2.5 Overview

By examining all the data, we have the final analysis of coarticulated tonal context for given names:

Table 8

	Token	Percentage
Compatible context	736	50.7%
Conflicting context	713	49.3%

This quantitative analysis reveals that people have no preference for compatible tonal context, because the chance for both two tonal contexts is roughly parallel. This implies that people don't tend to make names concerning about the tonal pattern. There must be some factors that override this consideration. In the following, we are going to focus on the semantics of characters. Before that, let's review the intermit summary so far:

- (1) High tones (first and second tones) do have priority to be final tones, especially second tone, which has 37.6% of distribution among all.
- (2) The distribution of each tone is average:
 first tone has 25.5%, 28.5%, 29.3% and 26.2% chance to follow first, second, third and fourth tone, respectively;
 second tone has 41%, 31.4%, 36.2% and 41.9% chance to follow first, second, third and fourth tone, respectively;
 third tone has 9.7%, 8.7%, 5.5% and 9.4% chances to follow first, second, third and fourth tone, respectively;
 fourth tone has 23.8%, 31.4%, 29 % and 22.5% chance to follow first, second, third and fourth tone, respectively.
 This means that the first character of given names does not particular prefer any tone to follow it. That no matter what tone the first character is, the second tone always has the highest percentage is an explicit indicator.
- (3) Each tone has its lowest proportion while the proceeding character carries the same tone with it. We suggest the reason lie in that people favor tonal change in adjacent units. In this way sounds are more melodic and cadent.
- (4) There is a no tendency for names to comprise compatible context or conflicting context. That the second tone always has the highest proportion in all environment is again an obvious indicator.

4.3. Final characters avoid siyin (*Siyin)

Each Chinese character has three parts: onset, rhyme, and pitch. For rhymes, they are categorized to two groups: hongyin and siyin, depending on the glides of rhymes. Rhymes without glides like [pa] (怕), or rhymes with glide [u] like [uai] (外) are classified as hongyin; rhymes with glide [i] like [ie] (也), or glide [y] like [yan] (全) are classified as siyin. The classification is based on phonetic feature. Siyin have [+high] and [-back] features. Hongyin are sounds that are louder and clearer than siyin because of the manner of articulation and place of articulation. Our data shows that hongyin has a greater chance to be adopted in final characters:

Table 9

	Tokens	Percentage
Hongyin	842	58.1%
Siyin	607	41.9%
Total	1449	100%

Although the difference is not very significant, our data still proves a preference for hongyin rather than siyin.

4.4 Characters with bad meanings are disfavored (*Bad meaning)

Connotation of each character is a crucial consideration for naming. Like we have just discussed, although phonological pattern is important, semantics seems to be a more powerful motivation. According to our analysis, the tonal context of names does not show any preference for compatible context; hence, we would turn to semantics to survey other considerations.

First, when the first character is a first tone, second or third tones would

comprise a conflicting context. Characters with second or third tone in our data include: “元”(yuan2), “平”(ping2), “宏”(hong2), “男”(nan2), “成”(cheng2), “祥”(xiang2), “妮”(ni2), “如”(ru2), “池”(chi2), “文”(wun2), “美”(mei3), “眼”(yan3), “景”(jing3) and many others. Obviously, these characters either have positive meaning or mark gender difference. Take the following characters “成”(cheng), “美”(mei) and “妮”(ni) for example. The meaning of “成”(cheng) is “result” and “success”; that of “美”(mei) is “beauty” and “good”; that of “妮”(ni) is “young” and “beauty”. They are chosen because of their good meanings. The conflicting context, on the other hand, seems to be ignored.

Second, when a second tone is articulated with a second tone or third tone, a conflicting context would be formed. Table 5 demonstrates that the chance of conflicting tone is lower than compatible tone. Characters of second tone and third tone comprise: “盈”(ying2), “文”(wun2), “勤”(qin2), “全”(quan2), “遠”(yuan3), “寶”(bao3), “穎”(ying3), “瑋”(wei3), “儀”(yi2), and many others. Again, these characters all carry pleasant meaning. For instance, “盈”(ying2) means “abundance” and “fulfillment”, “文”(wun2) means “intellectual” and “gentleness”; “穎”(ying3) means “outstanding” and “brilliant”.

Third, when a third tone is articulated with first, third and fourth tone, a conflicting context would be formed. These characters include: “千”(qian1), “軒”(xuan1), “珍”(zhen1), “昇”(sheng1), “展”(zhan3), “敏”(min3), “朗”(lang3), “喜”(xi3), “利”(li4), “媚”(mei4), “靜”(jing4), “惠”(hui4) and many others. These characters all encode positive impression. For example, “展”(zhan3) means “development”, “昇”(sheng1) means “advance”, “喜”(xi3) means “happiness”, and “惠”(hui4) means “favors”.

Last, when a fourth tone is followed by a first and fourth tone, the tonal context will be conflicting. Character of first and fourth tones are: “姿”(zi1), “娟”(juan1), “馨”(xin1), “珍”(zhen1), “佳”(jia1), “靜”(jing4), “仲”(zhong4), “旺”(wang4), “志”(zhi4), “彥”(yan4), “善”(shan4) and many others. They all confirm to social expectation: “娟”(juan1) means “beauty” and “tenderness”, “旺”(wang4) means “prosperity”, “珍”(zhen1) and “value” and “cherish”.

What is worthy of notice is, several characters in our data, including “矗”(chu4), “琛”(chen1), “圳”(zhen4) and “釗”(jiao1), are difficult to read, due to their low frequency and low popularity; however, they are still chosen as part of names even though they constitute a conflicting tones. Not surprisingly, they all have good or neutral meaning. “矗”(chu4) means “highness”; “琛”(chen1) means “values”; “圳”(zhen4) means “trench”; “釗”(jiao1) means “diligence”. These words prove that once a character bears good meaning, the phonological factors become secondary.

Sometimes tonal context conflicts with semantic connotation. By examining names which compose a conflicting context, we find that connotation of each character has priority over tonal context consideration. If a character bears positive meaning, it would be adopted even though a conflicting tone is resulted. Louse (1998) also points that many Chinese people check the dictionary to name their children to make sure the character is resourceful and have good meaning. No matter by what means parents pick up characters, good meaning is definitely a very dominate factor.

4.5 Names that do not specify gender are disfavored (*No specific gender)

Many Chinese characters imply gender. stereotypes. For example, people feel “成”(cheng2), “榮”(rong2) and “淵”(yuan1) are for male; “玲”(ling2), “靜”(jing4) and “蓉”(rong2) are for female. Culture and social expectation associate these characters with specific gender implication. The meaning of “成”(cheng2) is “success” and “result”; “榮”(rong2) is “honor” and “good reputation”; “淵”(yuan1) is “knowledgeable”. Both men and women could achieve these goals; however, the society tends to reserve these characters for male, not female. This is the same for feminine characters. Men deserve positive meanings like “玲”(ling2) for “favor”, “靜”(jing4) for “stillness” and “peace”, “蓉”(rong2) for “good-looking”, but the society is prone to apply these meaning to women. In our 1449 tokens, we do find that all names have either both two characters or at least one character for specific gender. For feminine meanings, there are “姿”(zih1), “娜”(na4), “莉”(li4), “琪”(qi2), “麗”(li4), “香”(xiang1), “婷”(ting2), “梅”(mei2) and so on; for masculine meaning there are “宏”(hong2), “泉”(quan2), “光”(guang1), “俊”(jun4), “建”(jian4), “郎”(lang2) and so on; for neutral meanings there are “喜”(xi3), “恩”(en1), “楨”(zhen1), “智”(zhi4), “旻”(min3), “穎”(ying3), “德”(de3) and “庭”(ting2). Many names have both their characters for masculine or feminine meaning. For example, we have “宏光”(hong2 guang1), “建俊”(jian4 jun4), “姿婷”(zih1 ting2) or “莉香”(li4 xiang1). As for names which have one character for neutral meaning, the other character must carry gender implication. For example, “喜榮”(xi3 rong2) or “成穎”(cheng2 ying3). “喜”(xi3) and “穎”(ying3) are neutral characters, but the other characters, “榮”(rong2) and “成”(cheng2), help to identify these names for men. Although neutral characters do not tell gender, their counterparts take this job. As the society becoming more liberal and more neutral characters chosen as names, the gender stereotype is still influential, because it presents the social and cultural expectation children should attain.

4.6 Names homophonic to bad meanings are disfavored. (*Homophonic to bad meaning)

Liao (2000) proposes that people avoid names homophonic to bad or common things. Homophonic pairs are not unusual in Chinese, since a set sound may have several correspondences in forms. Liao gives an example of “湯曉歆”(tang1 xiao3 xin1). The person with this name is always upset when being warned to be careful on drinking soup. This illustration explains why people try to avoid homophonic names which evoke inadequate meanings. In our opinion, homophonic sound is based on metonymic association. That is, sound is part of the name; sound with positive association leads to a positive impression of name, and sound with negative association leads to a negative one. In our data, we have homophonic names, but all of them bear good, or at least neutral, associations: “明裕”(ming2 yu4) is linked with “good reputation”; “明娥”(ming2 e2) with “quota”; “雅觀”(ya3 guan1) with “good looking”; and “敏瑞”(min3 rui4) with “sharpness”. It is reasonable to assume that names homophonic to bad meanings are abandoned. Consequently, our data does not have such example. However, names like “建仁”(jian4 ren2), “建銘”(jian4 ming2) and “健民”(jian4 min2) are popular in Taiwan, and they are homophonic to “lowly people” which is an insult or personal attack for swearing. Why do parents adopt these names? The separate meaning of “健”(jian4), “仁”(ren2), “銘”(ming2) and “民”(min2) is good, which means “strong”, “kindness”, “forever” and “people” respectively. These good meanings are the reasons

why these names are prevalent, even though a bad association arises. Again, connotation of each character is dominating. The ranking of connotation is more prominent than the homophonic constraint.

5. Interaction between Phonology and Semantics

In the previous sections, we have discussed phonological and semantic constraints of names. We employ OT to provide a model to explain the complexity of names:

- (1) Final characters avoid low tone. (*Low tone)
- (2) Names avoid conflicting context. (*Conflicting context)
- (3) Final characters avoid siyin. (*Siyin)
- (4) Characters with bad meanings are disfavored. (*Bad meaning)
- (5) Names that do not specify gender are disfavored. (*No specific gender)
- (6) Names homophonic to bad meanings are disfavored. (*Homophonic to bad meaning)

Let's first consider the ranking of (1) and (4). Constraint (1) states that final characters avoid low tone while (4) states that characters avoid bad meaning. In our data, all characters conform to (4) while not all final characters avoid low tones. Examples are :“安道”(an1 dao4), “秋彦”(ciu1 yan4), “光宇”(guang1 yu3), “明有”(ming2 you3), “永郁”(yong3 yu4), “秀智”(sie4 jhih4) and “雅莉”(ia3 li4) are many among the others. Table 2 represents that roughly 35% names in our data violate constraint (1) because they end at low tone. Under the situation that all names conforms to (4) but 35% violate (1), the ranking is (4) > (1).

As for constraint (4) and (6), they sometimes conflict with each other. The former says characters avoid bad meaning and the latter says the name should not be homophonic to bad implication. In our data, these two constrains are both satisfied because all characters have good meanings and all homophonic names are connected with either good or neural associations. Based on our data, the ranking is equally important. However, if we take names like “健仁”(jian4 ran2), “健民”(jian4 min2) and “健銘”(jian4 ming2) into consideration, constraint (4) is ranked higher than (1). These names demonstrate that the violation of (6) is also acceptable. Therefore, constraint (4) > (6) is possible as well.

Regarding to constraint (1) and (6), if we only consider data collected in this study, all names are subject to constraint (6) while 35% of names violate (1). It is reasonable to propose (6) > (1), because our data shows no names homophonic to bad meanings. On the other hand, if we take cases of “健仁”(jian4 ran2), “健民”(jian4 min2) and “健銘”(jian4 ming2) into consideration again, the situation is different. These three names happen to end at high tone; therefore constraint (1) is ranked over (6). Hence: (1) > (6) is also a possible ranking.

As for constraint (2) which states names avoid conflicting context, Table 8 displays that this trend is not obvious. What's more important is the connotation of characters and high tones. Hence, constraint (2) is ranked lower than (1), (4), (6).

As for constraint (1) and (2), 35% of names violate (1) while roughly 50% of names violate (2). This statistic analysis implies that more data is subject to (1) than (2). Table 4 to Table 7 also clearly elucidates that second tone (a high tone) has the largest proportion no matter what tone proceeds it. Namely, if the proceeding character tone is

first or second tone with which a conflicting context will be produced, second tone is still the one that has the highest frequency. Example are “安達”(an1 da2), “安吉”(an1 ji2), “秋伶”(ciu1 ling2), “秋怡”(ciu1 yi2), “明光”(ming2 guang1), “明學”(ming2 syue2), “宏青”(hong2 cing1) and “宏潔”(hong2 jie2) and many others. Hence, constraint (1) is ranked higher than (2).

As for constraint (3) which requires final characters avoid siyin, Figure 9 shows that 58.1% of names conforms to this constraint. If we consider it with constraint (2) together, we find that (3) is ranked higher than (2). The statistic evidence shows more names satisfy constraint (3) (58.1%) than (2) (49.5%). Names of this case include: “安宏”(an1 hong2), “秋文”(ciu1 wun2), “光此”(guang1 ci3), “明哲”(ming2 jhi2), “永兆”(yong3 jhao4), “雅珍”(ia3 jhen1), “敏志”(min3 jhi4), “秀芳”(sie4 fang1) and “俊富”(jyun4 fu4) and many others. However, (3) is still ranked inferiorly than (1), (4) and (6) because these three constraints are supported by the majority of cases.

As for (5) which states that names not specifying gender are disfavored is of significance, because our data all implies gender difference, either by two characters or only one character. For names having one neutral character, the other character must tell the gender implication. Examples are “秋彥”(ciu1 yan4) and “秋伶”(ciu1 ling2). The character “秋”(ciu1) does not carry gender stereotype; however, “彥”(yan4) is obviously for male and “伶”(ling2) for female, with accordance to the definition and social expectation of these two characters respectively. Constraint (5), therefore, overrides (1), (2) and (3).

As for constraint (4) and (5), they are equally important because all data complies them. We can see that in names, semantics consideration is more powerful than phonological ones. No matter how phonological constraints (1), (2) and (3) are ranked, semantic ones have priority order.

Based on our discussion, two possible ranking are proposed:

(1)

	*No specific gender	*Bad meaning	*Homophonic to bad meaning	* Low tone	*Siyin	*Conflicting context
Candidate a						
Candidate b						

This ranking explains most data. We take several names to examine the ranking⁴:

	* No specific gender	* Bad meaning	*Homophonic to bad meaning	* Low tone	*Siyin	*Conflicting context
光博 (guang1 bo2)						!

⁴ OT has a fallacy of perfection. That is, no output form is possible to satisfy all constraints. In our study, some names satisfy all constraints. The reason is that our constraints do not include all possible ones in naming. Say for example, fortune teller's suggestions or family's pedigree names are beyond our discussion.

明倫 (ming2 lun2)						!
雅婷 (ya3 ting2)						
秀薇 (sie4 wei2)						
秋如 (ciu1 ru2)						!
宏智 (hong2 jhih4)				!		
永俊 (yong3 jyun4)				!	!	!
敏雄 (min3 syong2)					!	
俊廷 (jyun4 ting2)					!	
光遠 (guang1 yuan3)				!	!	!

If we take common names like “健仁” (jian4 ran2), “健民” (jian4 min2) and “健銘” (jian4 ming2) into consideration, we have the second version of ranking. Although these names are not collected in our data, they are still discussed due to the commonplace in Taiwan.

(2)

	* No specific gender	* Bad meaning	* Low tone	*Homophonic to bad meaning	* Siyin	*Conflicting context
Candidate a						
Candidate b						

This second possible mode is proposed based on the cases of “健仁(jian4 ran2)”, “健民”(jian4 min2) and “健銘” (jian4 ming2). The following is the illustration:

	* No specific gender	* Bad meaning	* Low tone	*Homophonic to bad meaning	* Siyin	*Conflicting context
健仁 (jian4 ran2)				!		
健銘 (jian4 ming2)				!		
健民 (jian4 min2)				!		

The three names demonstrate constraint (6) ‘Names homophonic to bad meanings are disfavored.’ is not fatal. Since the three name are common in Taiwan society, this ranking is possible, although is not reflected by our data.

6. Future study

This paper focuses on linguistics, that is, phonology and semantics of names. We provide an OT model to explain the most probable constraint ranking of names. Further work can be extended to culture and personal considerations, such as family background and personal preference. Many Taiwanese name their children by fortune tellers’ suggestions, specific characters of family generations, and convenience of pronunciation of their native languages. The large-scale interview is a potential method to survey these social factors. Once these factors are included, OT could provide a more complete model of names.

References

- Fon, I-Jen. 1997. *What are tones really like? : An acoustic-based study of taiwan mandarin tones*. Dissertation, National Taiwan University.
- Eisner, Jason. 1997. Efficient generation in primitive Optimality Theory. *Proceedings of the 35th Annual Meeting of the Association for Computational Linguistics*.
- Johnson, Mark. 1987. *The Body in The Mind*. Chicago: University of Chicago Press.
- Kager, Rene. 1999. *Optimality Theory*. UK: Cambridge University Press.
- Katamba, Francis. 1989. *An introduction to phonology*. Britain: Longman.
- Kreidler, Charles. 1998. *Introducing English Semantics*. London: Routledge.
- Lakoff, George and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.
- Liao Chao-Chih. 2000. *A Sociolinguistic Study of Taiwan-Chinese Personal Names, Nicknames, and English Names*. Taipei: Crane.
- Prince, Alan and Paul Smolensky. 1993. *Optimality Theory: constraints interaction in generative grammar*. Ms., Rutgers University, New Brunswick and University of Colorado, Boulder.
- Wardhaugh, Ronald. 1986. *An Introduction to Sociolinguistics*. Oxford: Blackwell.
- Wilson, Stephen. 1998. *The Means of Naming*. Britain: University of College London.
- Willis, Frank, Lois Willis and Joseph Gier. 1982. Given names, social class, and professional achievement. *Psychological reports*, 51: 543-49.
- Xu, Yi. 1994. Production and perception of coarticulated tones. *Journal of Acoustics*

Society of America, 95: 2240-53.

二十一世紀研究會，《人名的世界地圖》，時報文化，2002。

吉常宏著，《中國人的名字別號》，商務印書館，1994。

趙元任著、丁新邦譯，《中國話的文法》，香港中文大學，1968，中譯本 1980。

董同龢著，《漢語音韻學》，文史哲出版社，1998。

