

科技部補助專題研究計畫成果報告 期末報告

智慧型手機應用程式使用模式探勘 (II)

計畫類別：個別型計畫
計畫編號：MOST 103-2221-E-004-015-
執行期間：103年08月01日至104年10月31日
執行單位：國立政治大學資訊科學系

計畫主持人：徐國偉

計畫參與人員：碩士班研究生-兼任助理人員：鄭博元
碩士班研究生-兼任助理人員：陳柏羽
碩士班研究生-兼任助理人員：高銓廷
博士班研究生-兼任助理人員：林逸芃

處理方式：

1. 公開資訊：本計畫可公開查詢
2. 「本研究」是否已有嚴重損及公共利益之發現：否
3. 「本報告」是否建議提供政府單位施政參考：否

中華民國 104 年 10 月 31 日

中文摘要：隨著智慧型手機日益普及，相關研究變得更加重要；智慧型手機應用程式的數量正在快速地增加，而這使得應用程式使用的自由度增加但卻讓相關研究變得更有挑戰性。本計畫是『智慧型手機應用程式使用模式探勘』(102-2221-E-004-013)的延伸，其目的是應用資料探勘技術，從智慧型手機應用程式日誌紀錄當中，挖掘出應用程式的使用模式。在沒有任何假設或監督的情形之下，本計畫研究使用者使用應用程式的組合與順序，並將重點放在組合與順序是如何隨時間變化，目標是應用資料探勘技術去發現使用者的習慣的改變。本計畫參考前一個計畫所使用的真實資料來源，但會使用更大的資料集。本計畫用的原始資料集的維度不高，但資料集內有超過一千個應用程式，而每個應用程式有可以有數個行為(功能)。每個應用程式可以是資訊的消費者和生產者，還可以是其使用者和環境之間的介面(例如，照相和錄音應用程式)；每個使用者都可以任意安裝、移除，以及使用應用程式，還可任意在應用程式之間切換，而不用受限於預先設定好的“路徑”(例如，超連結引導網頁之間的切換)。因為這些特性，一般的網頁點擊串流探勘技術無法直接用於本計畫。本計畫的第一個重點是定義模式，第二個重點是對資料進行前置處理，第三個重點是對處理後的資料做序列模式探勘，第四個重點是分析模式的動態。本報告呈現本計畫截至繳交時之研究成果，而結果將可協助社會科學學者制定研究問題(例如，“為什麼使用者要用這種方式使用這個應用程式？”或是“使用者特質會如何影響使用者他們使用應用程式的行為？”)。本計畫的產出將可推動更多相關於智慧型手機應用程式使用的研究。

中文關鍵詞：智慧型手機應用程式、模式探勘、使用者行為

英文摘要：With the growing popularity of smartphones, the relevant studies become more important; the number of smartphone applications (Apps) quickly increases, and this increases the degree of freedom of App usage but makes the relevant studies more challenging. This project is an extension of the project “Pattern Mining for Smartphone Application Usage” (102-2221-E-004-013), while its purpose is to apply data mining techniques to mine App usage patterns from smartphone App 日誌紀錄 data. Without any hypothesis or supervision, this project studies the combinations and sequences of Apps that users use, and it puts the focus on how the combinations or sequences change over time, while the goal of this project is to apply data mining techniques to discover the changes of users’ habits. This project refers to the real-world data source used by the previous project, but it uses a larger data set. The dimension of the raw data set used in this project is not high, but there are more than one thousand Apps in the data set and each App could have several activities (functions). Every App can be an information consumer and producer, and it can be in interface between its user and the environment (for example, recorder and camera Apps); every user can

arbitrarily install, uninstall, and use Apps, and he or she can arbitrarily switch between Apps without being restricted by the pre-defined “paths” (for example, hyperlinks guide switching between web pages). Due to these characteristics, general web clickstream mining techniques cannot be directly applied to this project. The first point on which this project focused is to define usage pattern; the second point is to perform data pre-processing for the data; the third point is to perform sequential pattern mining for the pre-processed data; the fourth point is to analyze dynamics of patterns. This report presents the results of this project as at the time of submission, and the results would be able to assist social scientists in asking research questions (for example, “Why would the users use this App in this way?” or “How do users’ characteristics affect their App usage behaviors?”). The output of this project would be able to drive more studies relevant to the use of smartphone applications.

英文關鍵詞： Smartphone App, Pattern Mining, User Behavior

科技部補助專題研究計畫成果報告

(期中進度報告/期末報告)

智慧型手機 App 使用模式探勘(II)

計畫類別：個別型計畫 整合型計畫

計畫編號：MOST 103-2221-E-004-015-

執行期間：103 年 8 月 1 日至 104 年 10 月 31 日

執行機構及系所：國立政治大學資訊科學系

計畫主持人：徐國偉

共同主持人：

計畫參與人員：博士班研究生-兼任助理人員：林逸芃

碩士班研究生-兼任助理人員：陳柏羽、鄭博元、高銓廷

本計畫除繳交成果報告外，另含下列出國報告，共 0 份：

執行國際合作與移地研究心得報告

出席國際學術會議心得報告

期末報告處理方式：

1. 公開方式：

非列管計畫亦不具下列情形，立即公開查詢

涉及專利或其他智慧財產權，一年二年後可公開查詢

2. 「本研究」是否已有嚴重損及公共利益之發現：否 是

3. 「本報告」是否建議提供政府單位施政參考 否 是，_____（請列舉提供之單位；本部不經審議，依勾選逕予轉送）

中 華 民 國 104 年 10 月 31 日

目錄

中文摘要.....	III
Abstract	IV
前言.....	1
研究目的.....	1
文獻探討.....	2
研究方法.....	3
結果.....	8
結論.....	9
參考文獻.....	10
附錄一：2010 Q3 到 2010 Q4 的模式的變化.....	14
附錄二：2010 Q4 到 2011 Q1 的模式的變化.....	16
附錄三：2011 Q1 到 2011 Q2 的模式的變化.....	18
附錄四：2011 Q2 到 2011 Q3 的模式的變化.....	21
附錄五：2011 Q3 到 2011 Q4 的模式的變化.....	25
附錄六：2011 Q4 到 2012 Q1 的模式的變化.....	28
附錄七：2012 Q1 到 2012 Q2 的模式的變化.....	30
附錄八：2012 Q2 到 2012 Q3 的模式的變化.....	33
附錄九：2012 Q3 到 2012 Q4 的模式的變化.....	36
附錄十：2012 Q4 到 2013 Q1 的模式的變化.....	39
附錄十一：2013 Q1 到 2013 Q2 的模式的變化.....	59
附錄十二：2013 Q2 到 2013 Q3 的模式的變化.....	80
附錄十三：2013 Q3 到 2013 Q4 的模式的變化.....	84
附錄十四：2013 Q4 到 2014 Q1 的模式的變化.....	86
附錄十五：2014 Q1 到 2014 Q2 的模式的變化.....	88
附錄十六：2014 Q2 到 2014 Q3 的模式的變化.....	90

附錄十七：2014 Q3 到 2014 Q4 的模式的變化..... 92

中文摘要

隨著智慧型手機日益普及，相關研究變得更加重要；智慧型手機應用程式的數量正在快速地增加，而這使得應用程式使用的自由度增加但卻讓相關研究變得更有挑戰性。本計畫是『智慧型手機應用程式使用模式探勘』(102-2221-E-004-013)的延伸，其目的是應用資料探勘技術，從智慧型手機應用程式日誌紀錄當中，挖掘出應用程式的使用模式。在沒有任何假設或監督的情形之下，本計畫研究使用者使用應用程式的組合與順序，並將重點放在組合與順序是如何隨時間變化，目標是應用資料探勘技術去發現使用者的習慣的改變。本計畫參考前一個計畫所使用的真實資料來源，但會使用更大的資料集。本計畫用的原始資料集的維度不高，但資料集內有超過一千個應用程式，而每個應用程式有可以有數個行為(功能)。每個應用程式可以是資訊的消費者和生產者，還可以是其使用者和環境之間的介面(例如，照相和錄音應用程式)；每個使用者都可以任意安裝、移除，以及使用應用程式，還可任意在應用程式之間切換，而不用受限於預先設定好的“路徑”(例如，超連結引導網頁之間的切換)。因為這些特性，一般的網頁點擊串流探勘技術無法直接使用於本計畫。本計畫的第一個重點是定義模式，第二個重點是對資料進行前置處理，第三個重點是對處理後的資料做序列模式探勘，第四個重點是分析模式的動態。本報告呈現本計畫截至繳交時之研究成果，而結果將可協助社會科學學者制定研究問題(例如，“為什麼使用者要用這種方式使用這個應用程式？”或是“使用者特質會如何影響使用者他們使用應用程式的行為？”)。本計畫的產出將可推動更多相關於智慧型手機應用程式使用的研究。

關鍵詞：智慧型手機應用程式、模式探勘、使用者行為

Abstract

With the growing popularity of smartphones, the relevant studies become more important; the number of smartphone applications (Apps) quickly increases, and this increases the degree of freedom of App usage but makes the relevant studies more challenging. This project is an extension of the project “Pattern Mining for Smartphone Application Usage” (102-2221-E-004-013), while its purpose is to apply data mining techniques to mine App usage patterns from smartphone App 日誌紀錄 data. Without any hypothesis or supervision, this project studies the combinations and sequences of Apps that users use, and it puts the focus on how the combinations or sequences change over time, while the goal of this project is to apply data mining techniques to discover the changes of users’ habits. This project refers to the real-world data source used by the previous project, but it uses a larger data set. The dimension of the raw data set used in this project is not high, but there are more than one thousand Apps in the data set and each App could have several activities (functions). Every App can be an information consumer and producer, and it can be in interface between its user and the environment (for example, recorder and camera Apps); every user can arbitrarily install, uninstall, and use Apps, and he or she can arbitrarily switch between Apps without being restricted by the pre-defined “paths” (for example, hyperlinks guide switching between web pages). Due to these characteristics, general web clickstream mining techniques cannot be directly applied to this project. The first point on which this project focused is to define usage pattern; the second point is to perform data pre-processing for the data; the third point is to perform sequential pattern mining for the pre-processed data; the fourth point is to analyze dynamics of patterns. This report presents the results of this project as at the time of submission, and the results would be able to assist social scientists in asking research questions (for example, “Why would the users use this App in this way?” or “How do users’ characteristics affect their App usage behaviors?”). The output of this project would be able to drive more studies relevant to the use of smartphone applications.

Keywords: Smartphone App, Pattern Mining, User Behavior

前言

智慧型手機的功能不限於通訊，它是功能豐富且允許使用者安裝各種 App(應用程式)的行動裝置。隨著智慧型手機的使用者越來越多，關於智慧型手機 App 的相關研究是越來越重要。App 的開發人員越能對使用者使用 App 的模式有深入且廣泛的了解，他們就越能開發出符合使用者需求的 App。對於智慧型手機 App 的使用及其模式的研究方法，較常見的方法是採用問卷調查，但是，這種研究方法有其限制。另一方面，現有研究是關於 App 的設計與實作，但是關於智慧型手機 App 的使用模式，仍有研究空間。本計畫是在研究如何用資料探勘技術，協助分析智慧型手機 App 的使用模式。在資料探勘領域，大部分相關的研究著重在探勘行動裝置或智慧型手機使用者的軌跡，藉以分析使用者的移動模式或路徑，或是預測 App 的使用，但是，很少研究將重點放在 App 的使用模式的探勘。智慧型手機屬於行動資訊系統，它不但具有多種功能，而且它的功能還可以透過 App 不斷地擴充，而它所產生的資料的自由度很高。若考量 App 的種類和數量，還有它們之間的可能的組合，分析智慧型手機 App 的使用行為有其難度。可將一個 App 視為一個商品或項目，但是，因為本計畫使用的 App log 資料裡面沒有交易的概念，所以，既有的序列模式探勘演算法無法直接使用，而是要先進行資料前置處理，之後才能使用。另外，本計畫也延伸既有的模式探勘演算法，找出特別的 App 使用模式。本計畫的研究成果可協助 App 的開發人員將 App 設計成智慧系統。

研究目的

無論是在社會科學或是資訊領域，智慧型手機 App 的相關研究越來越重要。例如，[1]探討 App 使用者持續使用以及移除 App 的原因，[2]探討 App 內的廣告行銷廣告對於使用者購買意願與決策的影響，[3]探討使用者對特定商家的 App 的態度和想法，[4]探討遊戲 App 的成功因素，[5]評估手機的相片瀏覽 App，[6]探討使用手機時的情境對通訊內容的感受程度的影響，[7]探討智慧型手機上的網際網路使用模式，[8]探討行動裝置上的媒體捕捉和分享行為背後的動機，[9]探討使用者挑選行動遊戲的因素，[10]探討行動裝置的使用者行為、使用心理，以及需求，[11]探討使用者下載和使用 App 的需求、使用、認知，以及態度，[12]探討使用者對智慧型手機上的付費軟體的喜好與行為模式。上述研究，主要是採用調查或訪談的方法，因此受限於調查或訪談等研究方法的限制。在資訊領域，有不少關於智慧型手機的應用研究，例如，[13]研究如何利用智慧型手機去記錄使用者個人隨身活動，[14]研究如何利用 App 本身的行為的相似性去偵測惡意程式，[15]研究如何利用智慧型手機上的感測器去收集資料，進而建立模型，用來

辨識使用者於日常生活中的活動。然而，關於智慧型手機 App 的使用模式，相關的研究卻不多。有不少資料探勘計畫是在研究，如何從智慧型手機或行動裝置使用者的軌跡當中，探勘出使用者的移動模式，例如[16]、[17]、[18]，還有[19]，但是將重點放在 App 使用模式的研究卻不多，少數的範例如[20]和[21]，而[22]用手機的時空資訊去預測使用者情境並快速啟動 App。

使用者究竟是如何使用他或她手機上的 App？[23]指出研究這個問題的重要性：“分析智慧型手機上 App 使用的紀錄，提供一個獨特的機會去發現一個人 App 使用的行為”。許多人使用智慧型手機，而且花不少時間在使用 App，所以了解智慧型手機使用者如何使用他們手機上的 App 是一個重要的研究主題。本計畫重點是找出 App 使用模式的變化，也就是模式的動態，特別是針對描述使用者在一次的歷程內連續地使用哪些應用程式的序列模式的變化，成果可將協助學者探討使用者的 App 使用習慣的變化。

政治大學 X-Mind 研究團隊¹，在頂尖大學研究計畫的支持下，進行『智慧型手機行動傳播實驗平台建置』計畫，其目的在開發軟體，以生活實驗室的方式收集智慧型手機使用者使用 App 的行為。本計畫使用的資料，是由該團隊所收集的 Android 智慧型手機的 App log[24][25]，全部的原始資料有超過 200 萬筆紀錄，而每一筆紀錄的紀錄包含時間、使用者編號，以及使用的 App 的 package 名稱。Android 的 App 主要是由 java 撰寫而成。Android 的 package 的作用就像是 java 的套件，代表 App。這裡的紀錄的時間是指使用者開始使用某個 App 的時間，而本計畫所使用的資料沒有使用者結束使用某個 App 的時間。

本計畫的第一個重點是定義模式，第二個重點是對資料進行前置處理，第三個重點是對處理後的資料做序列模式探勘，第四個重點是分析模式的動態。

文獻探討

[23]針對使用者 App 的使用行為的探勘，提出演算法：首先，從 App 使用紀錄當中，找出使用狀況隨時間變化的 App，然後，用時間輪廓存放相對應的資料，最後，用資料去預測使用者在接下來會使用的 App。[26]的研究重點是探勘使用者的軌跡和 App 使用，找出個人活動區域內可代表使用者行為偏好之 App。上述研究主要在探討 App 的使用與時間或空間的關係，但它們不是在探討使用者用了某些 App 後還會用哪些 App，更不是在探討使用者在這段時間(例如這個月)的使用習慣和上個時段(例如上個月)有何不同。上述研究相關於但是不同於本計畫所做的研究。[20]和[21]都在發展用來預測使用者會用哪個 App 的演算法，而本計畫的主題不是放在預測，而是放在模式隨時間的變化。

國內外有研究使用 Nokia 的 MDC 資料集(但已無法於網路直接下載)[27]：

¹ <http://x-mind.km.nccu.edu.tw/>

[28]提出基於特徵子空間的演算法，用來預測使用者的打電話的行為，[29]提出演算法，用來預測使用者下一個會用的 App，進而達成 App 的 pre-loading，[30]是從時間序列資料分析的角度去預測 App 的使用。上述研究的重點，都是在建立預測模型，而從資料探勘的角度來看，一個預測模型的內容，不見得可以被輕易的理解，也就是說，上述(和其他關於預測 App 使用的)研究，對於了解使用者使用 App 當時的情境，或是使用 App 的習慣，幫助有限。本計畫的研究重點，則是在找出使用者使用 App 的模式的变化，與上述研究有所不同。另外，[31]發展一套工具，用來從感測器收集到的個人資料串流當中找出重要的模式，但本計畫感興趣的是 App 使用模式以及模式的变化。[32]探討針對行為改變感應的人類行為理解，但沒有從技術層面探討如何找出使用者使用智慧型手機上的 App 的模式的变化。

諸多學者研究並提出諸多序列模式探勘演算法，例如 GSP[33]、SPADE[34]、SPAM[35]，還有 PrefixSpan[36]。上述演算法的核心圍繞著頻繁子序列的支持度，也就是 support。現有的演算法不適合直接用於 App log 的探勘，無法直接用來找出使用者使用 App 的模式及其变化。

研究方法

本計畫是要從 log 當中探勘出 App 的使用模式。使用者使用 App 的自由度很高，很容易切换、交替，或重複使用 App。App 的使用模式會受到使用者的習慣所影響，也會受到 App 的屬性所影響。

本計畫所使用的資料集，其內的每一筆 log 的紀錄是 $l = (t, u, p)$ ，而 t 是時間戳記， u 是使用者代號， p 是 package(App 名稱)。這裡的 log 的時間是指使用者開始使用某個 App 的時間，但本計畫所使用的資料集內沒有使用者結束使用某個 App 的時間。用 l_i 代表第 i 筆 log 紀錄，時間是 $l_i(t)$ ，使用者是 $l_i(u)$ ，使用的 App 是 $l_i(p)$ 。本計畫，依據如下所述的定義，對資料集做轉換，並做初步的前置處理，便於後續探勘工作的進行。log 的前置處理，主要是要將 log 紀錄轉為交易紀錄：先將每個使用者的 log 紀錄依時間排序，找出時間間距大於預設門檻值的兩筆紀錄，然後把前一筆紀錄當作是前一筆交易的結束時間，而後一筆紀錄當作是下一筆交易的開始時間。

將資料集內的 log 紀錄依據使用者代號做分群，使得同一群內的 log 紀錄會是同一個使用者所做的操作。假設群有 n 筆 log 紀錄，而且這些 log 紀錄經過排序，也就是 $1 \leq i < n$ ， $l_i(t) \leq l_{i+1}(t)$ 。依據群的定義， $l_i(u) = l_{i+1}(u)$ 且 $l_i(m) = l_{i+1}(m)$ 。一個群可以包含多個使用歷程，內含多筆 log 紀錄，代表一個使用者在手機上的一連串的 App 使用。若 $l_{i+1}(t) - l_i(t) > 10$ 分鐘，則 l_{i+1} 和 l_i 分屬不同的使用歷程，否則兩個屬於同一個使用歷程裡面。也就是說，

將同一個使用者的 log 紀錄，依時間排序，由先到後，同一次使用歷程內的任兩筆相鄰 log 紀錄，時間差不超過 10 分鐘。全部的原始資料有超過 200 萬筆紀錄，來自數十位使用者，在 2010 年第三季到 2014 年第四季的這段時間，使用各自手機上的 App 的 log。

假設使用歷程是 $x=\{l\}$ 。兩個使用歷程 $x_0=\{l_i, l_{i+1}, \dots, l_{i+a}\}$ 和 $x_1=\{l_j, l_{j+1}, \dots, l_{j+b}\}$ ，而 $j=i+a+1$ 。有學者提出類似的概念，用 $l_{i+a}(t)-l_i(t) \leq 10$ 分鐘去定義一個 transaction，例如[37]，但這裡則是用 $l_j(t)-l_{i+a}(t) > 10$ 分鐘去定義兩個使用歷程，而不管 $l_{i+a}(t)-l_i(t)$ 是幾分鐘。這裡的定義顯然比較適合實際的情況，因為使用者可能連續使用照相、相片編修，社群網路服務，還有即時通訊等 App，超過 10 分鐘，而且這種使用模式，正是本計畫感興趣的模式。另外，在同一個使用歷程內，若 $l_{i+1}(t)-l_i(t) \leq 1$ 秒鐘，則兩者屬於同一個項目集(itemset)或元素(element)。將全部的原始資料轉換後，有超過 25 萬個使用歷程。轉換後的資料，依時間分成數個資料集，彙整於表一。

表一：實驗資料

時間	紀錄筆數	每個使用歷程內的項目集的平均	每個使用歷程內的項目的平均數
2010 Q3	70	4.6	5.4
2010 Q4	9623	9.6	10.5
2011 Q1	16079	8.2	8.8
2011 Q2	4375	10.3	11.7
2011 Q3	11764	10	11.6
2011 Q4	14029	8.2	9.5
2012 Q1	17004	9	10.3
2012 Q2	20858	10	11.3
2012 Q3	21596	10.8	12.4
2012 Q4	15538	10.9	12.7
2013 Q1	14930	14.2	17.5
2013 Q2	19142	9.9	11.6
2013 Q3	24005	7.7	8.5
2013 Q4	17434	6.8	7.5
2014 Q1	22397	7.6	8.5
2014 Q2	14343	6.2	6.8
2014 Q3	9227	4.1	4.4
2014 Q4	10	5.6	6.3

從表一可以看出，2010 第三季和 2014 年第四季的資料量很少，或可忽

略不計。

序列模式，記為 SP，表示接續使用 App。SP “使用 p_i 後接著使用 p_j ” 的 support，定義如下：

$$\text{SUP}(\text{SP}: p_i \rightarrow p_j) = \frac{\text{先用 } p_i \text{ 然後接著用 } p_j \text{ 的使用歷程的數量}}{\text{全部使用歷程的數量}}$$

在一個使用歷程內，先用 p_i (某個 App) 然後接著用 p_j (另一個 App)，是指 $p_i = l_k(p)$ 且 $p_j = l_{k+1}(p)$ 。接下來，本計畫要看的是一種有時間間隔限制的序列模式(用 SP^{TC} 表示)，其相對應的 support，定義如下：

$$\text{SUP}(\text{SP}^{\text{TC}}: p_i \rightarrow p_j) = \frac{\text{先用 } p_i \text{ 然後在指定時間內用 } p_j \text{ 的使用歷程的數量}}{\text{全部使用歷程的數量}}$$

在一個使用歷程內，先用 p_i (某個 App) 然後在指定時間內用 p_j (另一個 App)，是指 $p_i = l_k(p)$ ， $p_j = l_{k+m}(p)$ ， $l_{k+m}(t) - l_k(t) \leq$ 預先設定的時間門檻值(例如 30 秒)。這個定義更一般化，找出來的序列模式也更有意義：“一段短的時間內，常被使用者一起使用的一組有先後次序的 App”。使用者可以任意在應用程式之間切換，舉例來說，使用者想做的是在照相後將照片上傳到社群服務網站，但可能在用完照相 App 後，先去檢查簡訊，然後才使用社群服務網站 App，而上述 SP 定義的序列模式無法找出這樣的模式，而 SP^{TC} 定義的序列模式則是可能。但 SP^{TC} 定義的序列模式並不直接適用於一般的序列模式探勘演算法。

另外，本計畫將整個資料依時間分成多個時段，而一個時段會包含多個使用歷程，也就是 $X_w = \{x\}$ 包含 w 時段內的全部使用歷程。本計畫的時段會是一個較大的值，像是一季。 $\text{SUP}(\text{SP}^{\text{TC}}: p_i \rightarrow p_j)$ 大於門檻值的比例。將 support 定義為“就一個時段內的全部使用歷程而言，先用 p_i 然後在指定時間內用 p_j 的使用歷程的比例”。依此定義所找出來的模式，比較能夠反應 App 使用方式的改變。本計畫針對 $\Delta \text{SUP}(\text{SP}^{\text{TC}}) = \text{SUP}(\text{SP}^{\text{TC}}_w) - \text{SUP}(\text{SP}^{\text{TC}}_{w-1})$ ，做適當的分析，也就是分析 SP^{TC} 在時段 w 和 $w-1$ 的變化。

本計畫所探討的 App 使用的 log 的 mining 與 web log mining，有下列幾點的不同：

- (1) App 可以是資訊的消費者和生產者，而 web page 是資訊的提供者，所以 App 的角色比較複雜。
- (2) App 可以是其使用者和環境之間的介面，所以使用者可能會受到環境的影響，而有一些臨時的、任意的 App 使用，但 web 沒有這個特

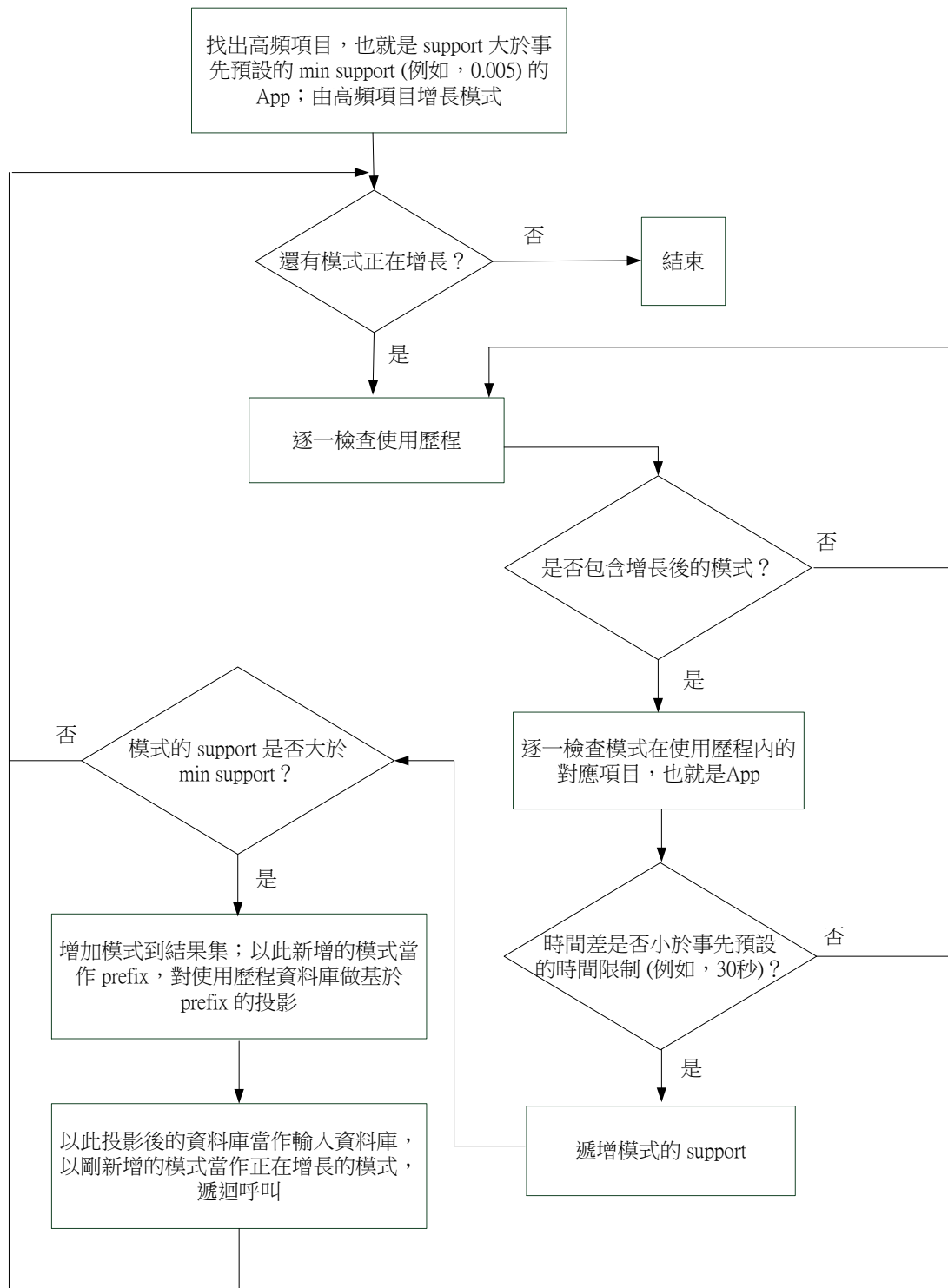
性。

- (3) App 使用的 log 是從各使用者的手機收集而來，事先並不知道使用者安裝、可以使用哪些 App，自由度較高，但 Web log 是 web server 上收集到的，針對某個 web，會事先知道大致的內容或架構，自由度較低。
- (4) 使用者都可以任意安裝、移除，以及使用應用程式，還可任意在應用程式之間切換，而不用受限於預先設定好的路徑，然而，web page 上的超連結實質上引導著使用者在網頁之間切換，是一種預設的路徑。
- (5) Web 程式的運作有 session 的機制，其內容包含使用者的狀態，但 App 沒有這個機制。

本計畫使用的原始資料集的維度不高，但資料集內有超過一千個應用程式，而每個應用程式可以有數個行為(功能)。因為上述 App 使用的 log 的 mining 和 web log mining 之間的不同，一般的網頁點擊串流探勘技術無法直接使用於本計畫。

本計畫延伸 PrefixSpan，進行有時間間隔限制的序列模式探勘，如圖一所示，找出“短時間內常被使用者一起使用的一組有先後次序的 App”。這裡的時間間隔限制，代表一個使用歷程內的相鄰 App 的使用的時間間隔。將此間隔設定得越短，代表探勘的重點是短時間內快速切換或是連續(而不是繼續)使用 App 的動作；將此間隔設定得越長，代表探勘的重點放在使用者會花較多(但又不是很多)時間的 App。本計畫參考[38]，選擇延伸 PrefixSpan 而不是其他序列模式探勘演算法，加入時間間隔限制的考慮。

本計畫使用的方法，相似於前一個計畫使用的方法，但前一個計畫使用的方法將時間間隔限制的檢查，放在資料投影的程式模組，而本計畫使用的方法是將該項檢查放在計算 support 的程式模組。從軟體工程的角度來看，在計算 support 的程式模組加上時間間隔限制的檢查，可以讓該模組被其他非 PrefixSpan 類的演算法所使用。



圖一：探勘有時間間隔限制的序列模式的方法

結果

本計畫將 min support 設定為 0.005 或 0.5%，將時間間隔限制設定為 30 秒，用前面所描述的方法對資料進行探勘，逐季比對探勘到的模式，結果放在附錄。附錄內，大括號的內容是模式，小括號的內容是項目集，可能是單一項目(也就是 App)，或是多個間隔不超過 1 秒的項目(也就是快速切換的一組 App)。一個模式內的項目集，由左至右，為時間先後順序；support 為使用歷程資料內出現某個模式的比率。

接下來是用範例來說明如何解讀結果。在附錄一裡面，“{(com.htc.launcher)(com.android.phone)}(support=0.11)”表示“先用 launcher，然後用 phone”的模式，其出現機率是 0.11 或 11%，也就是說，在 11% 的使用歷程裡面，可以發現使用者先用 launcher 然後用 phone 的模式。另外，“{(com.android.launcher)(com.android.launcher)}(support=0.1)”表示在 0.1 或 10% 的使用歷程裡面，可以發現使用者先使用 launcher，然後又再次使用 launcher。30 秒的時間間隔限制，是指如果一個使用歷程內的相鄰 App 的使用的時間間隔不超過 30 秒，則在計算 support 時，會將此使用歷程納入計算，而這代表探勘的重點，放在 30 秒內快速切換 App 的動作，可能是在不同 App 之前切換，也有可能在同一個 App 的不同功能頁面進行切換。重複使用 App 是指使用者在一個使用歷程之內，使用某 App，然後跳出程式，使用其他不頻繁、不常用的 App，然後又跳回或是再次使用該 App。在附錄一裡面可以看到，重複使用 com.facebook.katana (臉書 App) 的模式：重複 2 次的機率是 9%，重複 3 次的機率是 7%，重複 4 次的機率是 6%。這些數字，一方面，或與使用者對 App 的喜愛或依賴程度有關，另一方面，或可表示 com.facebook.katana 可以吸引使用者在跳出該 App 之後，還跳回去，再次使用。

模式“{(com.android.launcher)}”是指使用 Android 的 launcher (單一 App)，但它不是在每一季都出現，它在不同時段的 support，可能小到 0.08 或 8%，可能大到 0.3 或 30%。模式“{(com.android.contacts)}”只出現在 2010 和 2011，但它的 support 都不高。模式“{(com.android.music)}”則只出現在 2010 第三季。

雖然智慧型手機有許多與通訊或通話無關的功能，但它仍是手機，所以模式“{(com.android.phone)}” (使用 Android 的電話 App) 常出現，而且 support 算高，可從 0.13 到 0.33 (在資料量少的時段，support 更高，例如，在 2010 年第三季，它的 support 是 0.37，在 2014 年第四季，它的 support 是 0.4)。然而，模式

“{(com.htc.launcher)(com.android.phone)}”則很少出現，support 是 0.05 或 0.06 (在 2010 年第三季，資料量不多的情況下，它的 support 是 0.11)。這是說，使用者不常透過 launcher 去啟動電話功能。

App “Line (jp.naver.line.android)”是從 2012 第一季開始出現，而一開始，單獨使用它的模式，出現在 11% 的使用歷程，然而，連續使用它兩次的模式，也就是“{(jp.naver.line.android)(jp.naver.line.android)}”，一開始就有出現，support

是 0.07。在 2014 年第一和二期，此模式的 support 分別是 0.06 和 0.05，與一開始的 support 差不多。在一個使用歷程裡面，此 App 可能被使用多達 12 次：模式 “{(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}” 出現在 2013 年第一季，而它的 support 是=0.05。

App “Whatsapp (com.whatsapp)” 是從 2011 年第一季開始出現，但是 2012 年第三季之後就不再出現。一開始，模式 “{(com.whatsapp)}” 的 support 是 0.13，模式 “{(com.whatsapp) (com.whatsapp)}” 的 support 是 0.07，到最後，模式 “{(com.whatsapp)}” 的 support 還有 0.11，模式 “{(com.whatsapp) (com.whatsapp)}” 的 support 仍是 0.07。使用者對此 App 的使用，是突然減少。在一個使用歷程裡面，這個 App 可能被使用多達 5 次：模式 “{(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)}” 出現不只一次，support 是 0.05 或 0.06。從上述的結果可以看出，“Whatsapp” 與 “Line” 這兩個即時通訊 App 的使用情形，以及使用量的消長。

Facebook 的 App “(com.facebook.katana)” 是從 2010 年第四季開始出現，而一開始，單獨使用它的模式的 support 是 0.13，而在一使用歷程內，連續使用它兩次的模式的 support 是 0.09。也就是說，從一開始，約有一成的使用歷程會包含 Facebook 的 App。在一個使用歷程裡面，這個 App 可能被使用多達 7 次：模式 “{(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}” 出現不只一次，support 都是 0.05。

結論

本計畫的研究主題屬於資料探勘，目的在找出智慧型手機 App 的使用模式。隨著智慧型手機以及 App 相關技術的蓬勃發展，還有相關的商業活動日趨熱絡，本計畫的研究主題在業界的應用範圍廣泛，而在學界也具研究價值。本計畫採用特定但實際的資料，研究成果對業界而言有實際應用的潛力。就實際應用而言，為了設計更好的 App，主持人認為要對使用者如何使用 App 有更深入的了解，唯有如此，我們才能了解使用者使用 App 的習慣，故建議科技部能繼續補助關於智慧型手機使用者使用 App 的模式的研究。

參考文獻

- [1] 黃銘峰(指導教授: 劉士豪). 2013. 上班族手機應用程式持續使用之研究. 碩士論文. 中原大學, 資訊管理研究所.
- [2] 顏德儀(指導教授: 廖鴻圖). 2013. 智慧型手機應用程式內廣告對消費者購買意願影響之研究. 碩士論文. 世新大學, 資訊傳播學研究所.
- [3] 曾琳珊(指導教授: 張樹之). 2013. 探討如何以智慧型手機App促進消費者與店家間的互動關係. 碩士論文. 中興大學, 科技管理研究所.
- [4] 葉憲聰(指導教授: 曾信超). 2013. 益智休閒APP遊戲的關鍵成功因素. 碩士論文. 長榮大學, 高階管理碩士在職專班.
- [5] Naaman, M., Nair, R., and Kaplun, V. 2008. Photos on the Go: A Mobile Application Case Study, in Proc. of Conference on Human Factors in Computing Systems (CHI), 1739-1748.
- [6] Isaacs, E., Yee, N., Schiano, D., Good, N., Ducheneaut, N., and Bellotti, V. 2009. Mobile Microwaiting Moments: The Role of Context in Receptivity to Content While on the Go, Palo Alto Research Center (PARC) White Paper.
- [7] Tossell, C. C. 2012. An Empirical Analysis of Smartphone Use: Characterizing Internet Visit Patterns and User Differences. Ph.D. Thesis. Rice University, Houston, Texas, USA.
- [8] Goh, D. H. -L., Ang, R. P., Chua, A. Y., and Lee, C. S. 2009. Why We Share: A Study of Motivations for Mobile Media Sharing, in Proc. of International Conference on Active Media Technology (AMT), 195-206.
- [9] 陳煥文(指導教授: 張世其). 2012. 探討使用智慧型手機遊戲行為意圖之研究. 碩士論文. 國立彰化師範大學, 企業管理學系.
- [10] 劉彥君(指導教授: 黃蘭鎰). 2012. 使用智慧型手機與平板電腦關鍵因素之研究. 碩士論文. 國立彰化師範大學, 企業管理學系.
- [11] 張筑婷(指導教授: 林頌堅). 2012. 智慧型手機應用程式之使用者研究. 碩士論文. 世新大學, 資訊傳播學研究所.
- [12] 王莉萍(指導教授: 詹乾隆). 2012. 智慧型手機付費軟體之消費者行為研究. 碩士論文. 東吳大學, EMBA 高階經營碩士在職專班.
- [13] 蘇嚮權(指導教授: 蔣榮先). 2013. 建立一個可任意配戴之智慧型手機生活記錄器. 碩士論文. 國立成功大學, 資訊工程學系碩博士班.
- [14] 陳健宏(指導教授: 林盈達). 2012. 利用行為相似性偵測Android平台惡意應用程式. 碩士論文. 國立交通大學, 網路工程研究所.
- [15] 廖俊豪(指導教授: 許永真). 2010. 智慧型手機建構日常生活活動模型與辨識系統之研究. 碩士論文. 臺灣大學, 資訊工程學研究所.

- [16]張凱評(指導教授:彭文志). 2011. 基於使用者軌跡資料探勘個人化路徑. 碩士論文. 國立交通大學, 資訊科學與工程研究所.
- [17]Hung, C.-C. and Peng, W.-C. 2011. A Regression-based Approach for Mining User Movement Patterns from Random Sample Data, *Data and Knowledge Engineering*, 70(1): 1-20.
- [18]Lei, P.-R., Shen, T.-J., Peng, W.-C., and Su, I.-J. 2011. Exploring Spatial-Temporal Trajectory Model for Location Prediction, in *Proc. of International Conference on Mobile Data Management (MDM)*, 58-67.
- [19]Hung, C.-C. and Peng, W.-C. 2009. Clustering Object Moving Patterns for Prediction-based Object Tracking Sensor Networks, in *Proc. of International Conference on Information and Knowledge Management (CIKM)*, 1633-1636.
- [20]Liao, Z.-X., Pan, Y.-C., Peng, W.-C., and Lei, P.-R. 2013. On Mining Mobile Apps Usage Behavior for Predicting Apps Usage in Smartphones, in *Proc. of International Conference on Information and Knowledge Management (CIKM)*, 609-618.
- [21]潘依琴(指導教授:彭文志). 2012. 探勘手機應用程式的使用模式以預測其使用行為. 碩士論文. 國立交通大學, 網路工程研究所.
- [22]Yan, T., Chu, D., Ganesan, D., Kansal, A., and Liu, J. 2012. Fast App Launching for Mobile Devices Using Predictive User Context, in *Proc. of International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 113-126.
- [23]沈姿柔(指導教授:彭文志). 2011. 在智慧型手機上針對時間相關的行動應用程式做使用者行為預測. 碩士論文. 國立交通大學, 資訊科學與工程研究所.
- [24]Chen, P.-M., Chen, C.-H., Liao, W.-H., and Li, T.-Y. 2011. A Service Platform for Logging and Analyzing Mobile User Behaviors, in *Proc. International Conference on E-Learning and Games (Edutainment)*, 78-85.
- [25]Chen, P.-M., Wu, H.-Y., Hsu, C.-Y., Liao W.-H., and Li, T.-Y. 2012. Logging and Analyzing Mobile User Behaviors, in *Proc. of International Symposium on Cyber Behavior (CB)*.
- [26]盧俊達(指導教授:彭文志). 2011. 基於智慧型手機應用程式及軌跡探勘個人活動區域. 碩士論文. 國立交通大學, 資訊科學與工程研究所.
- [27]Laurila, J. K., Gatica-Perez, D., Aad, I., Blom, J., Bornet, O., Do, T.-M.-T., Dousse, O., Eberle, J., and Miettinen, M. 2012. The Mobile Data Challenge: Big Data for Mobile Computing Research, in *Workshop on the Nokia Mobile Data Challenge*.

- [28] Dai, P., Yang, W., and Ho, S.-S. 2013. Predicting Mobile Call Behavior via Subspace Methods, in Proc. of International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP), 466-475.
- [29] Huang, K., Zhang, C., Ma, X., and Chen, G. 2012. Predicting Mobile Application Usage Using Contextual Information, in Proc. of ACM Conference on Ubiquitous Computing (UbiComp), 1059-1065.
- [30] Tan, C., Liu, Q., Chen, E., and Xiong, H. 2012. Prediction for Mobile Application Usage Patterns, in Workshop on the Nokia Mobile Data Challenge.
- [31] Hsieh, K.-K., Tangmunarunkit, H., Alquaddoomi, F., Jenkins, J., Kang, J., Ketcham, C., Longstaff, B., Selsky, J., Dawson, B., Swendeman, D., Estrin, D., and Ramanathan, N. 2013. Lifestreams: A Modular Sense-Making Toolset for Identifying Important Patterns from Everyday Life, in Proc. of ACM Conference on Embedded Networked Sensor Systems (SenSys), Article 5.
- [32] Salah, A. A., Lepri, B., Pianesi, F., and Pentland, A. S. 2011. Human Behavior Understanding for Inducing Behavioral Change: Application Perspectives, in Proc. of International Workshop on Human Behavior Understanding, 1-15.
- [33] Srikant, R. and Agrawal, R. 1996. Mining Sequential Patterns: Generalizations and Performance Improvements, in Proc. of International Conference on Extending Database Technology (EDBT), 3-17.
- [34] Zaki, M. J. 1998. Efficient Enumeration of Frequent Sequences, in Proc. of International Conference on Information and Knowledge Management (CIKM), 68-75.
- [35] Ayres, J., Flannick, J., Gehrke, J., and Yiu, T. 2002. Sequential Pattern Mining Using a Bitmap Representation, in Proc. of International Conference on Knowledge Discovery and Data Mining (KDD), 429-435.
- [36] Pei, J., Han, J., Mortazavi-Asl, B., Wang, J., Pinto, H., Chen, Q., Dayal, U., and Hsu, M.-C. 2004. Mining Sequential Patterns by Pattern-Growth: The PrefixSpan Approach, IEEE Transactions on Knowledge and Data Engineering, 16(11): 1424-1440.
- [37] Do, T. M. T. and Gatica-Perez, D. 2013, Where and What: Using Smartphones to Predict Next Locations and Applications in Daily Life, Pervasive and Mobile Computing, Available online 23 April 2013. In

Press.

- [38]Pei, J., Han, J. and Wang, W. 2007. Constraint-based sequential pattern mining: the pattern-growth methods. *Journal of Intelligent Information Systems (JIIS)*, 28(2): 133-16.

附錄一：2010 Q3 到 2010 Q4 的模式的變化

模式在 2010 Q3 但不在 2010 Q4：

- 1: {(com.shazam.android)} (support=0.06)
- 2: {(com.mywoo.clog)} (support=0.06)
- 3: {(com.android.music)} (support=0.07)
- 4: {(com.android.launcher)} (support=0.3)
- 5: {(com.android.contacts)} (support=0.07)
- 6: {(com.htc.launcher) (com.android.phone)} (support=0.11)
- 7: {(com.android.phone) (com.htc.launcher)} (support=0.06)
- 8: {(com.android.mms) (com.android.launcher)} (support=0.07)
- 9: {(com.android.launcher) (com.android.launcher)} (support=0.1)
- 10: {(com.google.android.gm) (com.google.android.gm) (com.htc.launcher)}
(support=0.11)
- 11: {(com.google.android.gm) (com.google.android.gm) (com.google.android.gm)}
(support=0.06)
- 12: {(com.google.android.gm) (com.google.android.gm) (com.google.android.gm)
(com.htc.launcher)} (support=0.06)

模式在 2010 Q4 但不在 2010 Q3：

- 1: {(com.android.camera)} (support=0.07)
- 2: {(com.android.vending)} (support=0.07)
- 3: {(android)} (support=0.06)
- 4: {(com.facebook.katana)} (support=0.13)
- 5: {(com.android.htccontacts)} (support=0.05)
- 6: {(com.htc.android.worldclock)} (support=0.07)
- 7: {(com.google.android.talk)} (support=0.07)
- 8: {(com.android.phone) (com.android.phone)} (support=0.05)
- 9: {(com.android.browser) (com.android.browser)} (support=0.07)
- 10: {(com.facebook.katana) (com.facebook.katana)} (support=0.09)
- 11: {(com.android.mms) (com.android.mms)} (support=0.05)

- 12: {(com.android.settings) (com.android.settings) (com.android.settings)}
(support=0.05)
- 13: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.07)
- 14: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(com.facebook.katana)} (support=0.06)

有相同序列但不同 support 的模式：

- 1: 2010 Q3 : {(com.htc.launcher)} (support=0.47)
- 1: 2010 Q4 : {(com.htc.launcher)} (support=0.4)
- 2: 2010 Q3 : {(com.android.settings)}(support=0.07)
- 2: 2010 Q4 : {(com.android.settings)}(support=0.14)
- 3: 2010 Q3 : {(com.android.browser)} (support=0.06)
- 3: 2010 Q4 : {(com.android.browser)} (support=0.12)
- 4: 2010 Q3 : {(com.google.android.gm)} (support=0.21)
- 4: 2010 Q4 : {(com.google.android.gm)} (support=0.18)
- 5: 2010 Q3 : {(com.android.phone)} (support=0.37)
- 5: 2010 Q4 : {(com.android.phone)} (support=0.25)
- 6: 2010 Q3 : {(com.android.htcdialer)} (support=0.14)
- 6: 2010 Q4 : {(com.android.htcdialer)} (support=0.13)
- 7: 2010 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.11)
- 7: 2010 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.1)
- 8: 2010 Q3 : {(com.android.settings) (com.android.settings)} (support=0.06)
- 8: 2010 Q4 : {(com.android.settings) (com.android.settings)} (support=0.08)
- 9: 2010 Q3 : {(com.google.android.gm) (com.htc.launcher)} (support=0.17)
- 9: 2010 Q4 : {(com.google.android.gm) (com.htc.launcher)} (support=0.06)
- 10: 2010 Q3 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.16)
- 10: 2010 Q4 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.09)
- 11: 2010 Q3 : {(com.android.htcdialer) (com.android.phone)} (support=0.09)
- 11: 2010 Q4 : {(com.android.htcdialer) (com.android.phone)} (support=0.08)

附錄二：2010 Q4 到 2011 Q1 的模式的變化

模式在 2010 Q4 但不在 2011 Q1：

- 1: {{(com.android.camera)} (support=0.07)}
- 2: {{(com.android.vending)} (support=0.07)}
- 3: {{(android)} (support=0.06)}
- 4: {{(com.android.htccontacts)} (support=0.05)}
- 5: {{(com.google.android.gm) (com.htc.launcher)}(support=0.06)}
- 6: {{(com.android.mms) (com.android.mms)} (support=0.05)}
- 7: {{(com.android.settings) (com.android.settings) (com.android.settings)}
(support=0.05)}
- 8: {{(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.06)}

模式在 2011 Q1 但不在 2010 Q4：

- 1: {{(com.nd.android.pandahome2)} (support=0.05)}
- 2: {{(com.whatsapp)} (support=0.13)}
- 3: {{(com.htc.socialnetwork.plurk)} (support=0.05)}
- 4: {{(com.vp.alarmClockPlusDock)} (support=0.05)}
- 5: {{(com.whatsapp) (com.whatsapp)} (support=0.07)}

有相同序列但不同 support 的模式：

- 1: 2010 Q4： {{(com.htc.launcher)} (support=0.4)}
- 1: 2011 Q1： {{(com.htc.launcher)} (support=0.34)}
- 2: 2010 Q4： {{(com.android.phone)} (support=0.25)}
- 2: 2011 Q1： {{(com.android.phone)} (support=0.26)}
- 3: 2010 Q4： {{(com.android.settings)}(support=0.14)}
- 3: 2011 Q1： {{(com.android.settings)}(support=0.1)}
- 4: 2010 Q4： {{(com.android.browser)} (support=0.12)}
- 4: 2011 Q1： {{(com.android.browser)} (support=0.09)}

5: 2010 Q4 : {(com.google.android.gm)} (support=0.18)

5: 2011 Q1 : {(com.google.android.gm)} (support=0.15)

6: 2010 Q4 : {(com.facebook.katana)} (support=0.13)

6: 2011 Q1 : {(com.facebook.katana)} (support=0.11)

7: 2010 Q4 : {(com.android.mms)} (support=0.11)

7: 2011 Q1 : {(com.android.mms)} (support=0.1)

8: 2010 Q4 : {(com.google.android.talk)} (support=0.07)

8: 2011 Q1 : {(com.google.android.talk)} (support=0.08)

9: 2010 Q4 : {(com.android.settings) (com.android.settings)} (support=0.08)

9: 2011 Q1 : {(com.android.settings) (com.android.settings)} (support=0.05)

10: 2010 Q4 : {(com.android.browser) (com.android.browser)} (support=0.07)

10: 2011 Q1 : {(com.android.browser) (com.android.browser)} (support=0.05)

11: 2010 Q4 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.09)

11: 2011 Q1 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.07)

12: 2010 Q4 : {(com.facebook.katana) (com.facebook.katana)} (support=0.09)

12: 2011 Q1 : {(com.facebook.katana) (com.facebook.katana)}(support=0.07)

13: 2010 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.07)

13: 2011 Q1 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)

附錄三：2011 Q1 到 2011 Q2 的模式的變化

模式在 2011 Q1 但不在 2011 Q2：

- 1: {(com.nd.android.pandahome2)} (support=0.05)
- 2: {(com.htc.android.worldclock)} (support=0.07)
- 3: {(com.google.android.talk)} (support=0.08)
- 4: {(com.htc.socialnetwork.plurk)} (support=0.05)
- 5: {(com.vp.alarmClockPlusDock)} (support=0.05)

模式在 2011 Q2 但不在 2011 Q1：

- 1: {(com.android.launcher)} (support=0.16)
- 2: {(com.android.contacts)} (support=0.07)
- 3: {(com.android.camera)} (support=0.07)
- 4: {(com.android.htccontacts)} (support=0.06)
- 5: {(com.htc.album)} (support=0.05)
- 6: {(com.zdworks.android.zdclock)} (support=0.07)
- 7: {(com.android.phone com.android.htcdialer)} (support=0.06)
- 8: {(com.android.launcher) (com.android.launcher)} (support=0.05)
- 9: {(com.android.phone) (com.htc.launcher)} (support=0.07)
- 10: {(com.whatsapp) (com.htc.launcher)} (support=0.08)
- 11: {(com.android.settings) (com.htc.launcher)} (support=0.06)
- 12: {(com.google.android.gm) (com.htc.launcher)} (support=0.06)
- 13: {(com.htc.launcher) (com.whatsapp)} (support=0.06)
- 14: {(com.htc.launcher) (com.facebook.katana)} (support=0.06)
- 15: {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.1)
- 16: {(com.whatsapp) (com.whatsapp) (com.htc.launcher)} (support=0.05)
- 17: {(com.android.browser) (com.android.browser) (com.android.browser)} (support=0.07)
- 18: {(com.htc.launcher) (com.whatsapp) (com.whatsapp)} (support=0.07)
- 19: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)} (support=0.09)

- 20: {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)}
(support=0.07)
- 21: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.09)
- 22: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.05)
- 23: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.08)
- 24: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.07)
- 25: {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)
(com.whatsapp)} (support=0.06)
- 26: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.08)
- 27: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.06)
- 28: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)
- 29: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)
- 30: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2011 Q1 : {(com.google.android.gm)} (support=0.15)
- 1: 2011 Q2 : {(com.google.android.gm)} (support=0.13)
- 2: 2011 Q1 : {(com.android.phone)} (support=0.26)
- 2: 2011 Q2 : {(com.android.phone)} (support=0.33)
- 3: 2011 Q1 : {(com.android.htcdialer)} (support=0.13)
- 3: 2011 Q2 : {(com.android.htcdialer)} (support=0.16)
- 4: 2011 Q1 : {(com.facebook.katana)} (support=0.11)
- 4: 2011 Q2 : {(com.facebook.katana)} (support=0.19)
- 5: 2011 Q1 : {(com.htc.launcher)} (support=0.34)
- 5: 2011 Q2 : {(com.htc.launcher)} (support=0.46)
- 6: 2011 Q1 : {(com.android.browser)} (support=0.09)

6: 2011 Q2 : {(com.android.browser)} (support=0.18)

7: 2011 Q1 : {(com.android.settings)}(support=0.1)

7: 2011 Q2 : {(com.android.settings)}(support=0.15)

8: 2011 Q1 : {(com.whatsapp)} (support=0.13)

8: 2011 Q2 : {(com.whatsapp)} (support=0.26)

9: 2011 Q1 : {(com.android.mms)} (support=0.1)

9: 2011 Q2 : {(com.android.mms)} (support=0.11)

10: 2011 Q1 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.07)

10: 2011 Q2 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.06)

11: 2011 Q1 : {(com.android.phone) (com.android.phone)} (support=0.05)

11: 2011 Q2 : {(com.android.phone) (com.android.phone)} (support=0.07)

12: 2011 Q1 : {(com.android.htcdialer) (com.android.phone)} (support=0.08)

12: 2011 Q2 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)

13: 2011 Q1 : {(com.facebook.katana) (com.facebook.katana)}(support=0.07)

13: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana)}(support=0.14)

14: 2011 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.1)

14: 2011 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.14)

15: 2011 Q1 : {(com.android.browser) (com.android.browser)} (support=0.05)

15: 2011 Q2 : {(com.android.browser) (com.android.browser)} (support=0.11)

16: 2011 Q1 : {(com.android.settings) (com.android.settings)} (support=0.05)

16: 2011 Q2 : {(com.android.settings) (com.android.settings)} (support=0.07)

17: 2011 Q1 : {(com.whatsapp) (com.whatsapp)} (support=0.07)

17: 2011 Q2 : {(com.whatsapp) (com.whatsapp)} (support=0.14)

18: 2011 Q1 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)

18: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.12)

19: 2011 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

19: 2011 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

附錄四：2011 Q2 到 2011 Q3 的模式 式的變化

模式在 2011 Q2 但不在 2011 Q3：

- 1: {(com.zdworks.android.zdclock)} (support=0.07)
- 2: {(com.android.phone com.android.htcdialer)} (support=0.06)
- 3: {(com.htc.launcher) (com.whatsapp)} (support=0.06)
- 4: {(com.htc.launcher) (com.facebook.katana)} (support=0.06)
- 5: {(com.whatsapp) (com.whatsapp) (com.htc.launcher)} (support=0.05)
- 6: {(com.htc.launcher) (com.whatsapp) (com.whatsapp)} (support=0.07)
- 7: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)}
(support=0.09)
- 8: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.08)
- 9: {(com.htc.launcher) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.06)
- 10: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)

模式在 2011 Q3 但不在 2011 Q2：

- 1: {(android)} (support=0.06)
- 2: {(com.htc.android.worldclock)} (support=0.07)
- 3: {(com.whatsapp com.android.launcher)} (support=0.05)
- 4: {(com.android.settings) (com.android.launcher)} (support=0.06)
- 5: {(com.android.mms) (com.android.mms)} (support=0.07)
- 6: {(com.whatsapp) (com.android.launcher)} (support=0.06)
- 7: {(com.android.launcher) (com.android.launcher) (com.android.launcher)}
(support=0.06)

有相同序列但不同 support 的模式：

- 1: 2011 Q2： {(com.android.launcher)} (support=0.16)

1: 2011 Q3 : {(com.android.launcher)} (support=0.21)
 2: 2011 Q2 : {(com.android.contacts)} (support=0.07)
 2: 2011 Q3 : {(com.android.contacts)} (support=0.06)
 3: 2011 Q2 : {(com.android.phone)} (support=0.33)
 3: 2011 Q3 : {(com.android.phone)} (support=0.31)
 4: 2011 Q2 : {(com.whatsapp)} (support=0.26)
 4: 2011 Q3 : {(com.whatsapp)} (support=0.24)
 5: 2011 Q2 : {(com.android.mms)} (support=0.11)
 5: 2011 Q3 : {(com.android.mms)} (support=0.12)
 6: 2011 Q2 : {(com.android.camera)} (support=0.07)
 6: 2011 Q3 : {(com.android.camera)} (support=0.08)
 7: 2011 Q2 : {(com.facebook.katana)} (support=0.19)
 7: 2011 Q3 : {(com.facebook.katana)} (support=0.16)
 8: 2011 Q2 : {(com.android.settings)} (support=0.15)
 8: 2011 Q3 : {(com.android.settings)} (support=0.18)
 9: 2011 Q2 : {(com.android.browser)} (support=0.18)
 9: 2011 Q3 : {(com.android.browser)} (support=0.14)
 10: 2011 Q2 : {(com.google.android.gm)} (support=0.13)
 10: 2011 Q3 : {(com.google.android.gm)} (support=0.17)
 11: 2011 Q2 : {(com.htc.launcher)} (support=0.46)
 11: 2011 Q3 : {(com.htc.launcher)} (support=0.44)
 12: 2011 Q2 : {(com.android.htcdialer)} (support=0.16)
 12: 2011 Q3 : {(com.android.htcdialer)} (support=0.14)
 13: 2011 Q2 : {(com.android.htccontacts)} (support=0.06)
 13: 2011 Q3 : {(com.android.htccontacts)} (support=0.07)
 14: 2011 Q2 : {(com.htc.album)} (support=0.05)
 14: 2011 Q3 : {(com.htc.album)} (support=0.07)
 15: 2011 Q2 : {(com.android.launcher) (com.android.launcher)} (support=0.05)
 15: 2011 Q3 : {(com.android.launcher) (com.android.launcher)} (support=0.08)
 16: 2011 Q2 : {(com.android.phone) (com.android.phone)} (support=0.07)
 16: 2011 Q3 : {(com.android.phone) (com.android.phone)} (support=0.06)
 17: 2011 Q2 : {(com.whatsapp) (com.whatsapp)} (support=0.14)
 17: 2011 Q3 : {(com.whatsapp) (com.whatsapp)} (support=0.13)
 18: 2011 Q2 : {(com.whatsapp) (com.htc.launcher)} (support=0.08)
 18: 2011 Q3 : {(com.whatsapp) (com.htc.launcher)} (support=0.05)
 19: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana)} (support=0.14)
 19: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana)} (support=0.12)
 20: 2011 Q2 : {(com.android.settings) (com.htc.launcher)} (support=0.06)

20: 2011 Q3 : {(com.android.settings) (com.htc.launcher)} (support=0.07)

21: 2011 Q2 : {(com.android.browser) (com.android.browser)} (support=0.11)

21: 2011 Q3 : {(com.android.browser) (com.android.browser)} (support=0.08)

22: 2011 Q2 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.06)

22: 2011 Q3 : {(com.google.android.gm) (com.google.android.gm)}
(support=0.08)

23: 2011 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.14)

23: 2011 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.12)

24: 2011 Q2 : {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.1)

24: 2011 Q3 : {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.08)

25: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.12)

25: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.1)

26: 2011 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.07)

26: 2011 Q3 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

27: 2011 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

27: 2011 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

28: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.09)

28: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.08)

29: 2011 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

29: 2011 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

30: 2011 Q2 : {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)
(com.whatsapp)} (support=0.06)

30: 2011 Q3 : {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)
(com.whatsapp)} (support=0.05)

31: 2011 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.08)

31: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)

(com.facebook.katana) (com.facebook.katana) (support=0.07)

附錄五：2011 Q3 到 2011 Q4 的模式的變化

模式在 2011 Q3 但不在 2011 Q4：

- 1: {(android)} (support=0.06)
- 2: {(com.android.contacts)} (support=0.06)
- 3: {(com.whatsapp com.android.launcher)} (support=0.05)
- 4: {(com.android.settings) (com.android.launcher)} (support=0.06)
- 5: {(com.whatsapp) (com.htc.launcher)} (support=0.05)
- 6: {(com.whatsapp) (com.android.launcher)} (support=0.06)
- 7: {(com.google.android.gm) (com.htc.launcher)}(support=0.06)
- 8: {(com.google.android.gm) (com.google.android.gm)} (support=0.08)
- 9: {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)
- 10: {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.08)
- 11: {(com.android.launcher) (com.android.launcher) (com.android.launcher)}
(support=0.06)
- 12: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.05)
- 13: {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)}
(support=0.07)
- 14: {(com.whatsapp) (com.whatsapp) (com.whatsapp) (com.whatsapp)
(com.whatsapp)} (support=0.05)
- 15: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.05)

模式在 2011 Q4 但不在 2011 Q3：

- 1: {(com.htc.android.worldclock) (com.htc.android.worldclock)} (support=0.05)

有相同序列但不同 support 的模式：

1: 2011 Q3 : {(com.android.settings)} (support=0.18)
 1: 2011 Q4 : {(com.android.settings)} (support=0.14)
 2: 2011 Q3 : {(com.android.camera)} (support=0.08)
 2: 2011 Q4 : {(com.android.camera)} (support=0.06)
 3: 2011 Q3 : {(com.htc.album)} (support=0.07)
 3: 2011 Q4 : {(com.htc.album)} (support=0.06)
 4: 2011 Q3 : {(com.android.mms)} (support=0.12)
 4: 2011 Q4 : {(com.android.mms)} (support=0.1)
 5: 2011 Q3 : {(com.whatsapp)} (support=0.24)
 5: 2011 Q4 : {(com.whatsapp)} (support=0.14)
 6: 2011 Q3 : {(com.android.htccontacts)} (support=0.07)
 6: 2011 Q4 : {(com.android.htccontacts)} (support=0.05)
 7: 2011 Q3 : {(com.facebook.katana)} (support=0.16)
 7: 2011 Q4 : {(com.facebook.katana)} (support=0.14)
 8: 2011 Q3 : {(com.htc.android.worldclock)} (support=0.07)
 8: 2011 Q4 : {(com.htc.android.worldclock)} (support=0.12)
 9: 2011 Q3 : {(com.android.htcdialer)} (support=0.14)
 9: 2011 Q4 : {(com.android.htcdialer)} (support=0.15)
 10: 2011 Q3 : {(com.android.launcher)} (support=0.21)
 10: 2011 Q4 : {(com.android.launcher)} (support=0.14)
 11: 2011 Q3 : {(com.google.android.gm)} (support=0.17)
 11: 2011 Q4 : {(com.google.android.gm)} (support=0.08)
 12: 2011 Q3 : {(com.android.browser) (com.android.browser)} (support=0.08)
 12: 2011 Q4 : {(com.android.browser) (com.android.browser)} (support=0.07)
 13: 2011 Q3 : {(com.android.settings) (com.htc.launcher)} (support=0.07)
 13: 2011 Q4 : {(com.android.settings) (com.htc.launcher)} (support=0.05)
 14: 2011 Q3 : {(com.android.mms) (com.android.mms)} (support=0.07)
 14: 2011 Q4 : {(com.android.mms) (com.android.mms)} (support=0.05)
 15: 2011 Q3 : {(com.whatsapp) (com.whatsapp)} (support=0.13)
 15: 2011 Q4 : {(com.whatsapp) (com.whatsapp)} (support=0.07)
 16: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana)} (support=0.12)
 16: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana)} (support=0.1)
 17: 2011 Q3 : {(com.android.launcher) (com.android.launcher)} (support=0.08)
 17: 2011 Q4 : {(com.android.launcher) (com.android.launcher)} (support=0.05)
 18: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
 (support=0.1)
 18: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
 (support=0.09)

19: 2011 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)
19: 2011 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)
20: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.08)
20: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.07)
21: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.07)
21: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana)} (support=0.06)
22: 2011 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)
22: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.05)

附錄六：2011 Q4 到 2012 Q1 的模式的變化

模式在 2011 Q4 但不在 2012 Q1：

- 1: {(com.android.camera)} (support=0.06)
- 2: {(com.htc.android.worldclock) (com.htc.android.worldclock)} (support=0.05)
- 3: {(com.android.launcher) (com.android.launcher)} (support=0.05)
- 4: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.07)
- 5: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.06)
- 6: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.05)

模式在 2012 Q1 但不在 2011 Q4：

- 1: {(com.jiubang.goscreenlock)} (support=0.09)
- 2: {(com.gau.go.launcherex)}(support=0.06)
- 3: {(jp.naver.line.android)} (support=0.11)
- 4: {(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
- 5: {(com.android.browser) (com.android.browser) (com.android.browser)} (support=0.05)
- 6: {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2011 Q4： {(com.android.browser)} (support=0.14)
- 1: 2012 Q1： {(com.android.browser)} (support=0.13)
- 2: 2011 Q4： {(com.whatsapp)} (support=0.14)
- 2: 2012 Q1： {(com.whatsapp)} (support=0.18)
- 3: 2011 Q4： {(com.facebook.katana)} (support=0.14)
- 3: 2012 Q1： {(com.facebook.katana)} (support=0.1)

4: 2011 Q4 : {(com.android.phone)} (support=0.31)

4: 2012 Q1 : {(com.android.phone)} (support=0.29)

5: 2011 Q4 : {(com.htc.android.worldclock)} (support=0.12)

5: 2012 Q1 : {(com.htc.android.worldclock)} (support=0.11)

6: 2011 Q4 : {(com.htc.album)} (support=0.06)

6: 2012 Q1 : {(com.htc.album)} (support=0.05)

7: 2011 Q4 : {(com.android.launcher)} (support=0.14)

7: 2012 Q1 : {(com.android.launcher)} (support=0.13)

8: 2011 Q4 : {(com.google.android.gm)} (support=0.08)

8: 2012 Q1 : {(com.google.android.gm)} (support=0.09)

9: 2011 Q4 : {(com.android.browser) (com.android.browser)} (support=0.07)

9: 2012 Q1 : {(com.android.browser) (com.android.browser)} (support=0.08)

10: 2011 Q4 : {(com.android.settings) (com.android.settings)} (support=0.07)

10: 2012 Q1 : {(com.android.settings) (com.android.settings)} (support=0.08)

11: 2011 Q4 : {(com.android.settings) (com.htc.launcher)} (support=0.05)

11: 2012 Q1 : {(com.android.settings) (com.htc.launcher)} (support=0.06)

12: 2011 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.12)

12: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.13)

13: 2011 Q4 : {(com.whatsapp) (com.whatsapp)} (support=0.07)

13: 2012 Q1 : {(com.whatsapp) (com.whatsapp)} (support=0.09)

14: 2011 Q4 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)

14: 2012 Q1 : {(com.android.htcdialer) (com.android.phone)} (support=0.09)

15: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana)}(support=0.1)

15: 2012 Q1 : {(com.facebook.katana) (com.facebook.katana)} (support=0.06)

16: 2011 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

16: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

17: 2011 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.09)

17: 2012 Q1 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.05)

18: 2011 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)

18: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

附錄七：2012 Q1 到 2012 Q2 的模式的變化

模式在 2012 Q1 但不在 2012 Q2：

- 1: {(com.android.launcher)} (support=0.13)
- 2: {(com.whatsapp) (com.whatsapp) (com.whatsapp)} (support=0.05)

模式在 2012 Q2 但不在 2012 Q1：

- 1: {(android)} (support=0.05)
- 2: {(com.android.camera)} (support=0.06)
- 3: {(com.android.mms) (com.htc.launcher)} (support=0.05)
- 4: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
- 5: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
- 6: {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)
- 7: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.06)
- 8: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 9: {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.05)
- 10: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2012 Q1： {(com.htc.launcher)} (support=0.44)
- 1: 2012 Q2： {(com.htc.launcher)} (support=0.53)
- 2: 2012 Q1： {(com.android.mms)} (support=0.1)
- 2: 2012 Q2： {(com.android.mms)} (support=0.11)

3: 2012 Q1 : {(com.htc.android.worldclock)} (support=0.11)
3: 2012 Q2 : {(com.htc.android.worldclock)} (support=0.12)
4: 2012 Q1 : {(com.htc.album)} (support=0.05)
4: 2012 Q2 : {(com.htc.album)} (support=0.07)
5: 2012 Q1 : {(com.android.phone)} (support=0.29)
5: 2012 Q2 : {(com.android.phone)} (support=0.28)
6: 2012 Q1 : {(com.android.htcdialer)} (support=0.15)
6: 2012 Q2 : {(com.android.htcdialer)} (support=0.17)
7: 2012 Q1 : {(com.android.settings)}(support=0.14)
7: 2012 Q2 : {(com.android.settings)}(support=0.11)
8: 2012 Q1 : {(com.android.browser)} (support=0.13)
8: 2012 Q2 : {(com.android.browser)} (support=0.16)
9: 2012 Q1 : {(com.whatsapp)} (support=0.18)
9: 2012 Q2 : {(com.whatsapp)} (support=0.16)
10: 2012 Q1 : {(com.facebook.katana)} (support=0.1)
10: 2012 Q2 : {(com.facebook.katana)} (support=0.15)
11: 2012 Q1 : {(com.jiubang.goscreenlock)} (support=0.09)
11: 2012 Q2 : {(com.jiubang.goscreenlock)} (support=0.1)
12: 2012 Q1 : {(com.gau.go.launcherex)} (support=0.06)
12: 2012 Q2 : {(com.gau.go.launcherex)} (support=0.07)
13: 2012 Q1 : {(com.android.htccontacts)}(support=0.05)
13: 2012 Q2 : {(com.android.htccontacts)}(support=0.06)
14: 2012 Q1 : {(jp.naver.line.android)} (support=0.11)
14: 2012 Q2 : {(jp.naver.line.android)} (support=0.15)
15: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.13)
15: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.16)
16: 2012 Q1 : {(com.android.mms) (com.android.mms)} (support=0.05)
16: 2012 Q2 : {(com.android.mms) (com.android.mms)} (support=0.07)
17: 2012 Q1 : {(com.android.htcdialer) (com.android.phone)} (support=0.09)
17: 2012 Q2 : {(com.android.htcdialer) (com.android.phone)} (support=0.11)
18: 2012 Q1 : {(com.android.settings) (com.android.settings)} (support=0.08)
18: 2012 Q2 : {(com.android.settings) (com.android.settings)} (support=0.07)
19: 2012 Q1 : {(com.android.browser) (com.android.browser)} (support=0.08)
19: 2012 Q2 : {(com.android.browser) (com.android.browser)} (support=0.1)
20: 2012 Q1 : {(com.facebook.katana) (com.facebook.katana)} (support=0.06)
20: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana)} (support=0.1)
21: 2012 Q1 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
21: 2012 Q2 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

22: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

22: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.1)

23: 2012 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.05)

23: 2012 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.07)

24: 2012 Q1 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.05)

24: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.08)

25: 2012 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

25: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

附錄八：2012 Q2 到 2012 Q3 的模式的變化

模式在 2012 Q2 但不在 2012 Q3：

- 1: {(android)} (support=0.05)
- 2: {(com.android.mms) (com.htc.launcher)} (support=0.05)

模式在 2012 Q3 但不在 2012 Q2：

- 1: {(com.htc.calendar)} (support=0.05)
- 2: {(com.htc.launcher) (com.android.phone)} (support=0.05)
- 3: {(jp.naver.line.android) (com.htc.launcher)} (support=0.05)
- 4: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
- 5: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.06)
- 6: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)
- 7: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2012 Q2： {(com.whatsapp)} (support=0.16)
- 1: 2012 Q3： {(com.whatsapp)} (support=0.11)
- 2: 2012 Q2： {(com.htc.launcher)} (support=0.53)
- 2: 2012 Q3： {(com.htc.launcher)} (support=0.49)
- 3: 2012 Q2： {(jp.naver.line.android)} (support=0.15)
- 3: 2012 Q3： {(jp.naver.line.android)} (support=0.19)
- 4: 2012 Q2： {(com.android.settings)} (support=0.11)
- 4: 2012 Q3： {(com.android.settings)} (support=0.12)

5: 2012 Q2 : {(com.facebook.katana)} (support=0.15)
5: 2012 Q3 : {(com.facebook.katana)} (support=0.19)
6: 2012 Q2 : {(com.android.phone)} (support=0.28)
6: 2012 Q3 : {(com.android.phone)} (support=0.29)
7: 2012 Q2 : {(com.htc.android.worldclock)} (support=0.12)
7: 2012 Q3 : {(com.htc.android.worldclock)} (support=0.11)
8: 2012 Q2 : {(com.android.mms)} (support=0.11)
8: 2012 Q3 : {(com.android.mms)} (support=0.1)
9: 2012 Q2 : {(com.google.android.gm)} (support=0.09)
9: 2012 Q3 : {(com.google.android.gm)} (support=0.07)
10: 2012 Q2 : {(com.android.htccontacts)} (support=0.06)
10: 2012 Q3 : {(com.android.htccontacts)} (support=0.07)
11: 2012 Q2 : {(com.gau.go.launcherex)} (support=0.07)
11: 2012 Q3 : {(com.gau.go.launcherex)} (support=0.09)
12: 2012 Q2 : {(com.jiubang.goscreenlock)} (support=0.1)
12: 2012 Q3 : {(com.jiubang.goscreenlock)} (support=0.14)
13: 2012 Q2 : {(com.whatsapp) (com.whatsapp)} (support=0.09)
13: 2012 Q3 : {(com.whatsapp) (com.whatsapp)} (support=0.07)
14: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.16)
14: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.14)
15: 2012 Q2 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)
15: 2012 Q3 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.14)
16: 2012 Q2 : {(com.android.settings) (com.htc.launcher)} (support=0.06)
16: 2012 Q3 : {(com.android.settings) (com.htc.launcher)} (support=0.05)
17: 2012 Q2 : {(com.android.settings) (com.android.settings)} (support=0.07)
17: 2012 Q3 : {(com.android.settings) (com.android.settings)} (support=0.08)
18: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana)} (support=0.1)
18: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana)} (support=0.13)
19: 2012 Q2 : {(com.android.phone) (com.android.phone)} (support=0.06)
19: 2012 Q3 : {(com.android.phone) (com.android.phone)} (support=0.07)
20: 2012 Q2 : {(com.android.mms) (com.android.mms)} (support=0.07)
20: 2012 Q3 : {(com.android.mms) (com.android.mms)} (support=0.05)
21: 2012 Q2 : {(com.android.htcdialer) (com.android.phone)} (support=0.11)
21: 2012 Q3 : {(com.android.htcdialer) (com.android.phone)} (support=0.12)
22: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.1)
22: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

23: 2012 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.07)

23: 2012 Q3 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.1)

24: 2012 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)}
 (support=0.07)

24: 2012 Q3 : {(com.android.browser) (com.android.browser) (com.android.browser)}
 (support=0.08)

25: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
 (support=0.08)

25: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
 (support=0.1)

26: 2012 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.06)

26: 2012 Q3 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.07)

27: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
 (com.facebook.katana)} (support=0.06)

27: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
 (com.facebook.katana)} (support=0.09)

28: 2012 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.06)

28: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.05)

29: 2012 Q2 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
 (com.facebook.katana) (com.facebook.katana)} (support=0.05)

29: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
 (com.facebook.katana) (com.facebook.katana)} (support=0.07)

附錄九：2012 Q3 到 2012 Q4 的模式的變化

模式在 2012 Q3 但不在 2012 Q4：

- 1: {(com.whatsapp)} (support=0.11)
- 2: {(com.google.android.gm)} (support=0.07)
- 3: {(com.htc.calendar)} (support=0.05)
- 4: {(jp.naver.line.android) (com.htc.launcher)} (support=0.05)
- 5: {(com.whatsapp) (com.whatsapp)} (support=0.07)
- 6: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.05)

模式在 2012 Q4 但不在 2012 Q3：

- 1: {(com.htc.launcher com.android.browser)} (support=0.07)
- 2: {(com.htc.launcher) (com.android.browser)} (support=0.05)
- 3: {(com.facebook.katana) (com.htc.launcher)} (support=0.05)
- 4: {(com.android.browser) (com.htc.launcher)} (support=0.05)
- 5: {(com.htc.android.worldclock) (com.htc.android.worldclock)} (support=0.05)
- 6: {(com.htc.launcher) (com.android.browser) (com.android.browser)}
(support=0.07)
- 7: {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.05)
- 8: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)
- 9: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.05)

有相同序列但不同 support 的模式：

- 1: 2012 Q3： {(com.htc.launcher)} (support=0.49)

1: 2012 Q4 : {(com.htc.launcher)} (support=0.53)
 2: 2012 Q3 : {(com.android.camera)} (support=0.06)
 2: 2012 Q4 : {(com.android.camera)} (support=0.05)
 3: 2012 Q3 : {(jp.naver.line.android)} (support=0.19)
 3: 2012 Q4 : {(jp.naver.line.android)} (support=0.17)
 4: 2012 Q3 : {(com.android.browser)} (support=0.16)
 4: 2012 Q4 : {(com.android.browser)} (support=0.19)
 5: 2012 Q3 : {(com.android.phone)} (support=0.29)
 5: 2012 Q4 : {(com.android.phone)} (support=0.27)
 6: 2012 Q3 : {(com.android.htcdialer)} (support=0.17)
 6: 2012 Q4 : {(com.android.htcdialer)} (support=0.15)
 7: 2012 Q3 : {(com.gau.go.launcherex)} (support=0.09)
 7: 2012 Q4 : {(com.gau.go.launcherex)} (support=0.1)
 8: 2012 Q3 : {(com.jiubang.goscreenlock)} (support=0.14)
 8: 2012 Q4 : {(com.jiubang.goscreenlock)} (support=0.15)
 9: 2012 Q3 : {(com.android.htccontacts)} (support=0.07)
 9: 2012 Q4 : {(com.android.htccontacts)} (support=0.06)
 10: 2012 Q3 : {(com.android.mms)} (support=0.1)
 10: 2012 Q4 : {(com.android.mms)} (support=0.09)
 11: 2012 Q3 : {(com.android.settings)} (support=0.12)
 11: 2012 Q4 : {(com.android.settings)} (support=0.13)
 12: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana)} (support=0.13)
 12: 2012 Q4 : {(com.facebook.katana) (com.facebook.katana)} (support=0.11)
 13: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.14)
 13: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.16)
 14: 2012 Q3 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.14)
 14: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.12)
 15: 2012 Q3 : {(com.android.browser) (com.android.browser)} (support=0.1)
 15: 2012 Q4 : {(com.android.browser) (com.android.browser)} (support=0.12)
 16: 2012 Q3 : {(com.android.phone) (com.htc.launcher)} (support=0.07)
 16: 2012 Q4 : {(com.android.phone) (com.htc.launcher)} (support=0.08)
 17: 2012 Q3 : {(com.android.phone) (com.android.phone)} (support=0.07)
 17: 2012 Q4 : {(com.android.phone) (com.android.phone)} (support=0.06)
 18: 2012 Q3 : {(com.android.htcdialer) (com.android.phone)} (support=0.12)
 18: 2012 Q4 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)
 19: 2012 Q3 : {(com.android.settings) (com.htc.launcher)} (support=0.05)
 19: 2012 Q4 : {(com.android.settings) (com.htc.launcher)} (support=0.08)
 20: 2012 Q3 : {(com.android.settings) (com.android.settings)} (support=0.08)

20: 2012 Q4 : {(com.android.settings) (com.android.settings)} (support=0.07)

21: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.09)

21: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.1)

22: 2012 Q3 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.1)

22: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.09)

23: 2012 Q3 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.08)

23: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.09)

24: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.09)

24: 2012 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana)} (support=0.08)

25: 2012 Q3 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)

25: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.07)

26: 2012 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

26: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

27: 2012 Q3 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

27: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.06)

28: 2012 Q3 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)

28: 2012 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)
(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.05)

附錄十：2012 Q4 到 2013 Q1 的模式的變化

模式在 2012 Q4 但不在 2013 Q1：

- 1: {(com.android.camera)} (support=0.05)
- 2: {(com.htc.launcher com.android.browser)} (support=0.07)
- 3: {(com.facebook.katana) (com.htc.launcher)} (support=0.05)
- 4: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.08)
- 5: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.07)
- 6: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana) (com.facebook.katana)} (support=0.05)

模式在 2013 Q1 但不在 2012 Q4：

- 1: {(com.tencent.mm)} (support=0.07)
- 2: {(jp.co.beeworks.mushroomDX)} (support=0.05)
- 3: {(com.android.browser com.htc.launcher)} (support=0.13)
- 4: {(jp.naver.line.android com.htc.launcher)} (support=0.1)
- 5: {(com.htc.launcher com.android.settings)} (support=0.12)
- 6: {(jp.naver.line.android) (com.htc.launcher)} (support=0.1)
- 7: {(com.htc.launcher) (jp.naver.line.android)} (support=0.07)
- 8: {(com.htc.launcher) (com.android.settings)} (support=0.08)
- 9: {(com.htc.launcher) (com.android.browser com.htc.launcher)} (support=0.06)
- 10: {(com.android.htcdialer) (com.htc.launcher)} (support=0.05)
- 11: {(com.htc.android.worldclock) (com.htc.launcher)} (support=0.06)
- 12: {(com.android.settings) (com.android.browser)} (support=0.08)
- 13: {(com.android.settings) (com.android.browser com.htc.launcher)} (support=0.06)
- 14: {(com.android.mms) (com.htc.launcher)} (support=0.06)
- 15: {(com.tencent.mm) (com.tencent.mm)} (support=0.05)

- 16: {(com.android.browser com.htc.launcher) (com.android.browser)}
(support=0.09)
- 17: {(com.android.browser com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 18: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android)} (support=0.07)
- 19: {(jp.naver.line.android com.htc.launcher) (com.htc.launcher)} (support=0.05)
- 20: {(com.htc.launcher com.android.settings) (com.htc.launcher)} (support=0.08)
- 21: {(com.android.browser) (com.android.browser) (com.htc.launcher)}
(support=0.08)
- 22: {(com.android.browser) (com.htc.launcher) (com.android.browser)}
(support=0.05)
- 23: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)}
(support=0.05)
- 24: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.08)
- 25: {(com.android.browser) (com.htc.launcher) (com.android.browser
com.htc.launcher)} (support=0.05)
- 26: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)}
(support=0.1)
- 27: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)}
(support=0.07)
- 28: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.09)
- 29: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)} (support=0.07)
- 30: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.13)
- 31: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)} (support=0.08)
- 32: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)} (support=0.07)
- 33: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)} (support=0.07)
- 34: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)} (support=0.05)
- 35: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)}
(support=0.06)
- 36: {(com.htc.launcher) (com.android.phone) (com.htc.launcher)} (support=0.07)
- 37: {(com.htc.launcher) (com.android.settings) (com.android.browser)}
(support=0.05)
- 38: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)} (support=0.14)
- 39: {(com.htc.launcher) (com.android.settings) (com.android.settings)}
(support=0.08)
- 40: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser)} (support=0.08)
- 41: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)}

(support=0.05)

42: {(com.android.htcdialer) (com.android.phone) (com.htc.launcher)}
 (support=0.07)

43: {(com.android.phone) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

44: {(com.android.phone) (com.android.phone) (com.htc.launcher)} (support=0.06)

45: {(com.android.settings) (com.android.browser) (com.android.browser)}
 (support=0.1)

46: {(com.android.settings) (com.htc.launcher) (com.android.browser)}
 (support=0.08)

47: {(com.android.settings) (com.htc.launcher) (com.htc.launcher)} (support=0.08)

48: {(com.android.settings) (com.android.settings) (com.android.browser)}
 (support=0.06)

49: {(com.android.settings) (com.android.settings) (com.android.settings)}
 (support=0.06)

50: {(com.android.settings) (com.android.browser com.htc.launcher)
 (com.android.browser)} (support=0.07)

51: {(com.android.browser com.htc.launcher) (com.android.browser)
 (com.android.browser)} (support=0.07)

52: {(com.android.browser com.htc.launcher) (com.android.browser)
 (com.htc.launcher)} (support=0.06)

53: {(com.android.browser com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.06)

54: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.06)

55: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.htc.launcher)} (support=0.07)

56: {(com.android.browser) (com.android.browser) (com.htc.launcher)
 (com.htc.launcher)} (support=0.07)

57: {(com.android.browser) (com.htc.launcher) (com.android.browser)
 (com.android.browser)} (support=0.06)

58: {(com.android.browser) (com.htc.launcher) (com.android.browser)
 (com.htc.launcher)} (support=0.05)

59: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.07)

60: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.05)

61: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser)} (support=0.05)

62: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.08)

63: {(com.android.browser) (com.htc.launcher) (com.android.browser
 com.htc.launcher) (com.android.browser)} (support=0.05)

64: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.08)

65: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
 (jp.naver.line.android)} (support=0.06)

66: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
 (com.htc.launcher)} (support=0.07)

67: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.09)

68: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.06)

69: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
 (jp.naver.line.android)} (support=0.05)

70: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.07)

71: {(com.htc.launcher) (com.android.browser) (com.android.browser)
 (com.htc.launcher)} (support=0.07)

72: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
 (jp.naver.line.android)} (support=0.05)

73: {(com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
 (support=0.08)

74: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.11)

75: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.08)

76: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
 (jp.naver.line.android)} (support=0.06)

77: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
 (support=0.07)

78: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
 (com.android.browser)} (support=0.09)

79: {(com.htc.launcher) (com.htc.launcher) (com.android.browser) (com.htc.launcher)}
 (support=0.07)

80: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.11)

- 81: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)}
(support=0.07)
- 82: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.android.browser)}
(support=0.06)
- 83: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)}
(support=0.06)
- 84: {(com.htc.launcher) (com.htc.launcher) (com.android.settings) (com.htc.launcher)}
(support=0.12)
- 85: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)
(com.android.settings)} (support=0.06)
- 86: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser)} (support=0.07)
- 87: {(com.htc.launcher) (com.android.settings) (com.android.browser)
(com.android.browser)} (support=0.07)
- 88: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)
(com.android.browser)} (support=0.05)
- 89: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)
- 90: {(com.htc.launcher) (com.android.settings) (com.android.settings)
(com.htc.launcher)} (support=0.1)
- 91: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.06)
- 92: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.htc.launcher)} (support=0.05)
- 93: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)
- 94: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.07)
- 95: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.htc.launcher)} (support=0.06)
- 96: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.08)
- 97: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.htc.launcher)} (support=0.05)
- 98: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)
- 99: {(com.android.settings) (com.android.settings) (com.android.browser)
(com.android.browser)} (support=0.07)

100: {(com.android.settings) (com.android.settings) (com.htc.launcher) (com.android.browser)} (support=0.06)

101: {(com.android.settings) (com.android.settings) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

102: {(com.android.settings) (com.android.settings) (com.android.settings) (com.htc.launcher)} (support=0.09)

103: {(com.android.settings) (com.android.browser com.htc.launcher) (com.android.browser) (com.android.browser)} (support=0.05)

104: {(com.android.browser com.htc.launcher) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)

105: {(com.android.browser com.htc.launcher) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

106: {(com.android.browser com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

107: {(com.android.browser com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

108: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

109: {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

110: {(com.android.browser) (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

111: {(com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

112: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)

113: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

114: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

115: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

116: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

117: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.android.browser) (com.android.browser)} (support=0.06)

118: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

119: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

120: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

121: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

122: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

123: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

124: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

125: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.06)

126: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

127: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

128: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

129: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

130: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.07)

131: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.06)

132: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

133: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

134: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

135: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

136: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

137: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

138: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android)} (support=0.05)

139: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

140: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

141: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

142: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

143: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.07)

144: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.06)

145: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

146: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

147: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

148: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android)} (support=0.05)

149: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

150: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.08)

151: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.htc.launcher)} (support=0.06)

152: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.09)

153: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher)} (support=0.06)

154: {(com.htc.launcher) (com.htc.launcher) (com.android.settings) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

155: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)
(com.android.settings) (com.htc.launcher)} (support=0.08)

156: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.05)

157: {(com.htc.launcher) (com.android.settings) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

158: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.06)

159: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

160: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

161: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

162: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.06)

163: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

164: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.06)

165: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.05)

166: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

167: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

168: {(com.android.settings) (com.android.settings) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

169: {(com.android.settings) (com.android.settings) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.06)

170: {(com.android.settings) (com.android.settings) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

171: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.05)

172: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

173: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

174: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

175: {(com.android.browser) (com.android.browser) (com.android.browser)

(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

176: {(com.android.browser) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

177: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

178: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

179: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

180: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

181: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

182: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

183: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

184: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

185: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

186: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

187: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

188: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

189: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

190: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

191: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

192: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

193: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

194: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

195: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

196: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

197: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

198: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

199: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

200: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

201: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

202: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

203: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

204: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

205: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

206: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

207: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

208: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

209: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

210: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

211: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

212: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}

(com.android.browser) (com.android.browser) (com.android.browser)}
 (support=0.06)

213: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.06)

214: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

215: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

216: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

217: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (com.htc.launcher) (com.htc.launcher)} (support=0.06)

218: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.09)

219: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.05)

220: {(com.android.settings) (com.android.browser) (com.android.browser)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

221: {(com.android.settings) (com.htc.launcher) (com.android.browser)
 (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

222: {(com.android.settings) (com.htc.launcher) (com.android.browser)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

223: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.06)

224: {(com.android.settings) (com.android.settings) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

225: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.06)

226: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

227: {(com.android.browser) (com.android.browser) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.06)

228: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.05)

229: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

230: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.08)

231: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

232: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

233: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

234: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

235: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.05)

236: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.05)

237: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

238: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

239: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

240: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.05)

241: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}

(support=0.06)

242: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

243: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

244: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

245: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

246: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

247: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

248: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

249: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

250: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

251: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

252: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

253: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

254: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)

(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

255: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

256: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

257: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

258: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.05)

259: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

260: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

261: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

262: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

263: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.08)

264: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

265: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser) (com.android.browser)} (support=0.06)

266: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

267: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

268: {(com.htc.launcher) (com.android.browser) (com.android.browser)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher)} (support=0.05)

(jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

282: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

283: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

284: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.05)

285: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

286: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

287: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

有相同序列但不同 support 的模式：

1: 2012 Q4 : {(com.htc.launcher)} (support=0.53)

1: 2013 Q1 : {(com.htc.launcher)} (support=0.65)

2: 2012 Q4 : {(com.facebook.katana)} (support=0.19)

2: 2013 Q1 : {(com.facebook.katana)} (support=0.14)

3: 2012 Q4 : {(com.android.settings)}(support=0.13)

3: 2013 Q1 : {(com.android.settings)}(support=0.24)

4: 2012 Q4 : {(com.android.browser)} (support=0.19)

4: 2013 Q1 : {(com.android.browser)} (support=0.23)

5: 2012 Q4 : {(com.htc.album)} (support=0.07)

5: 2013 Q1 : {(com.htc.album)} (support=0.06)

6: 2012 Q4 : {(jp.naver.line.android)} (support=0.17)

6: 2013 Q1 : {(jp.naver.line.android)} (support=0.28)

7: 2012 Q4 : {(com.android.htccontacts)} (support=0.06)
7: 2013 Q1 : {(com.android.htccontacts)} (support=0.05)
8: 2012 Q4 : {(com.htc.android.worldclock)} (support=0.11)
8: 2013 Q1 : {(com.htc.android.worldclock)} (support=0.13)
9: 2012 Q4 : {(com.android.mms)} (support=0.09)
9: 2013 Q1 : {(com.android.mms)} (support=0.12)
10: 2012 Q4 : {(com.gau.go.launcherex)} (support=0.1)
10: 2013 Q1 : {(com.gau.go.launcherex)} (support=0.07)
11: 2012 Q4 : {(com.jiubang.goscreenlock)} (support=0.15)
11: 2013 Q1 : {(com.jiubang.goscreenlock)} (support=0.12)
12: 2012 Q4 : {(com.android.phone)} (support=0.27)
12: 2013 Q1 : {(com.android.phone)} (support=0.26)
13: 2012 Q4 : {(com.android.htcdialer)} (support=0.15)
13: 2013 Q1 : {(com.android.htcdialer)} (support=0.17)
14: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.16)
14: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.23)
15: 2012 Q4 : {(com.htc.launcher) (com.android.browser)} (support=0.05)
15: 2013 Q1 : {(com.htc.launcher) (com.android.browser)} (support=0.08)
16: 2012 Q4 : {(com.htc.launcher) (com.android.phone)} (support=0.05)
16: 2013 Q1 : {(com.htc.launcher) (com.android.phone)} (support=0.06)
17: 2012 Q4 : {(com.facebook.katana) (com.facebook.katana)} (support=0.11)
17: 2013 Q1 : {(com.facebook.katana) (com.facebook.katana)} (support=0.07)
18: 2012 Q4 : {(com.android.settings) (com.htc.launcher)} (support=0.08)
18: 2013 Q1 : {(com.android.settings) (com.htc.launcher)} (support=0.17)
19: 2012 Q4 : {(com.android.settings) (com.android.settings)} (support=0.07)
19: 2013 Q1 : {(com.android.settings) (com.android.settings)} (support=0.11)
20: 2012 Q4 : {(com.android.browser) (com.htc.launcher)} (support=0.05)
20: 2013 Q1 : {(com.android.browser) (com.htc.launcher)} (support=0.07)
21: 2012 Q4 : {(com.android.browser) (com.android.browser)} (support=0.12)
21: 2013 Q1 : {(com.android.browser) (com.android.browser)} (support=0.15)
22: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.12)
22: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.2)
23: 2012 Q4 : {(com.htc.android.worldclock) (com.htc.android.worldclock)}
(support=0.05)
23: 2013 Q1 : {(com.htc.android.worldclock) (com.htc.android.worldclock)}
(support=0.06)
24: 2012 Q4 : {(com.android.mms) (com.android.mms)} (support=0.05)
24: 2013 Q1 : {(com.android.mms) (com.android.mms)} (support=0.07)

25: 2012 Q4 : {(com.android.phone) (com.htc.launcher)} (support=0.08)

25: 2013 Q1 : {(com.android.phone) (com.htc.launcher)} (support=0.11)

26: 2012 Q4 : {(com.android.phone) (com.android.phone)} (support=0.06)

26: 2013 Q1 : {(com.android.phone) (com.android.phone)} (support=0.07)

27: 2012 Q4 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)

27: 2013 Q1 : {(com.android.htcdialer) (com.android.phone)} (support=0.11)

28: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.1)

28: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.16)

29: 2012 Q4 : {(com.htc.launcher) (com.android.browser) (com.android.browser)}
(support=0.07)

29: 2013 Q1 : {(com.htc.launcher) (com.android.browser) (com.android.browser)}
(support=0.12)

30: 2012 Q4 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.1)

30: 2013 Q1 : {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)

31: 2012 Q4 : {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.05)

31: 2013 Q1 : {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.13)

32: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.09)

32: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.11)

33: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.09)

33: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.16)

34: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

34: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.13)

35: 2012 Q4 : {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)

35: 2013 Q1 : {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.09)

36: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.07)

36: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.09)

37: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

37: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.13)

38: 2012 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

38: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.11)

39: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)

39: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.08)

40: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

40: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.11)

41: 2012 Q4 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.05)

41: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.07)

42: 2012 Q4 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

42: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

附錄十一：2013 Q1 到 2013 Q2 的 模式的變化

模式在 2013 Q1 但不在 2013 Q2：

- 1: {(com.htc.album)} (support=0.06)
- 2: {(jp.co.beeworks.mushroomDX)} (support=0.05)
- 3: {(com.htc.launcher com.android.settings)} (support=0.12)
- 4: {(com.android.browser) (com.htc.launcher)} (support=0.07)
- 5: {(com.facebook.katana) (com.facebook.katana)} (support=0.07)
- 6: {(com.htc.launcher) (com.android.phone)} (support=0.06)
- 7: {(com.htc.launcher) (com.android.browser com.htc.launcher)} (support=0.06)
- 8: {(com.android.htcdialer) (com.htc.launcher)} (support=0.05)
- 9: {(com.htc.android.worldclock) (com.htc.launcher)} (support=0.06)
- 10: {(com.htc.android.worldclock) (com.htc.android.worldclock)} (support=0.06)
- 11: {(com.android.settings) (com.android.browser com.htc.launcher)} (support=0.06)
- 12: {(com.tencent.mm) (com.tencent.mm)} (support=0.05)
- 13: {(com.android.browser com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 14: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android)} (support=0.07)
- 15: {(jp.naver.line.android com.htc.launcher) (com.htc.launcher)} (support=0.05)
- 16: {(com.htc.launcher com.android.settings) (com.htc.launcher)} (support=0.08)
- 17: {(com.android.browser) (com.htc.launcher) (com.android.browser)}
(support=0.05)
- 18: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)}
(support=0.05)
- 19: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.08)
- 20: {(com.android.browser) (com.htc.launcher) (com.android.browser
com.htc.launcher)} (support=0.05)
- 21: {(com.facebook.katana) (com.facebook.katana) (com.facebook.katana)}
(support=0.06)
- 22: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)}
(support=0.07)
- 23: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)} (support=0.07)
- 24: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)} (support=0.07)

- 25: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)} (support=0.05)
- 26: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)}
(support=0.06)
- 27: {(com.htc.launcher) (com.android.phone) (com.htc.launcher)} (support=0.07)
- 28: {(com.htc.launcher) (com.android.settings) (com.android.browser)}
(support=0.05)
- 29: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser)} (support=0.08)
- 30: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)}
(support=0.05)
- 31: {(com.android.htcdialer) (com.android.phone) (com.htc.launcher)}
(support=0.07)
- 32: {(com.android.phone) (com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 33: {(com.android.phone) (com.android.phone) (com.htc.launcher)} (support=0.06)
- 34: {(com.android.settings) (com.android.settings) (com.android.browser)}
(support=0.06)
- 35: {(com.android.settings) (com.android.settings) (com.android.settings)}
(support=0.06)
- 36: {(com.android.settings) (com.android.browser com.htc.launcher)
(com.android.browser)} (support=0.07)
- 37: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.07)
- 38: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.htc.launcher)} (support=0.06)
- 39: {(com.android.browser com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)
- 40: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)
- 41: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.htc.launcher)} (support=0.07)
- 42: {(com.android.browser) (com.android.browser) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)
- 43: {(com.android.browser) (com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.06)
- 44: {(com.android.browser) (com.htc.launcher) (com.android.browser)
(com.htc.launcher)} (support=0.05)
- 45: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

46: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

47: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
(com.android.browser)} (support=0.05)

48: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

49: {(com.android.browser) (com.htc.launcher) (com.android.browser
com.htc.launcher) (com.android.browser)} (support=0.05)

50: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.08)

51: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android)} (support=0.06)

52: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

53: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.09)

54: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher)} (support=0.06)

55: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android)} (support=0.05)

56: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.07)

57: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher)} (support=0.07)

58: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android)} (support=0.05)

59: {(com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

60: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android)} (support=0.06)

61: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
(support=0.07)

62: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.09)

63: {(com.htc.launcher) (com.htc.launcher) (com.android.browser) (com.htc.launcher)}
(support=0.07)

64: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)}
(support=0.07)

65: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.android.browser)}
 (support=0.06)

66: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)}
 (support=0.06)

67: {(com.htc.launcher) (com.htc.launcher) (com.android.settings) (com.htc.launcher)}
 (support=0.12)

68: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)
 (com.android.settings)} (support=0.06)

69: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)
 (com.android.browser)} (support=0.07)

70: {(com.htc.launcher) (com.android.settings) (com.android.browser)
 (com.android.browser)} (support=0.07)

71: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)
 (com.android.browser)} (support=0.05)

72: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)}
 (support=0.06)

73: {(com.htc.launcher) (com.android.browser com.htc.launcher)
 (com.android.browser) (com.android.browser)} (support=0.06)

74: {(com.htc.launcher) (com.android.browser com.htc.launcher)
 (com.android.browser) (com.htc.launcher)} (support=0.05)

75: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher)} (support=0.06)

76: {(com.android.settings) (com.android.browser) (com.android.browser)
 (com.htc.launcher)} (support=0.06)

77: {(com.android.settings) (com.htc.launcher) (com.android.browser)
 (com.htc.launcher)} (support=0.05)

78: {(com.android.settings) (com.android.settings) (com.android.browser)
 (com.android.browser)} (support=0.07)

79: {(com.android.settings) (com.android.settings) (com.htc.launcher)
 (com.android.browser)} (support=0.06)

80: {(com.android.settings) (com.android.settings) (com.htc.launcher)
 (com.htc.launcher)} (support=0.06)

81: {(com.android.settings) (com.android.settings) (com.android.settings)
 (com.htc.launcher)} (support=0.09)

82: {(com.android.settings) (com.android.browser com.htc.launcher)
 (com.android.browser) (com.android.browser)} (support=0.05)

83: {(com.android.browser com.htc.launcher) (com.android.browser)
 (com.android.browser) (com.android.browser)} (support=0.06)

84: {(com.android.browser com.htc.launcher) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

85: {(com.android.browser com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

86: {(com.android.browser com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

87: {(jp.naver.line.android com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

88: {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

89: {(com.android.browser) (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

90: {(com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

91: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)

92: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

93: {(com.android.browser) (com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

94: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

95: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

96: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.android.browser) (com.android.browser)} (support=0.06)

97: {(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

98: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.07)

99: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

100: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

101: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

102: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.07)

103: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

104: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.06)

105: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

106: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

107: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

108: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

109: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.07)

110: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.06)

111: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

112: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

113: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

114: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

115: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

116: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android)} (support=0.05)

117: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

118: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

119: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (com.htc.launcher)} (support=0.05)

120: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

121: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.07)

122: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.06)

123: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)

124: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

125: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android)} (support=0.05)

126: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

127: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.08)

128: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.htc.launcher)} (support=0.06)

129: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.09)

130: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher)} (support=0.06)

131: {(com.htc.launcher) (com.htc.launcher) (com.android.settings) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

132: {(com.htc.launcher) (com.htc.launcher) (com.android.settings)
(com.android.settings) (com.htc.launcher)} (support=0.08)

133: {(com.htc.launcher) (com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.05)

134: {(com.htc.launcher) (com.android.settings) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

135: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.06)

136: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.06)

137: {(com.htc.launcher) (com.android.browser com.htc.launcher)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

138: {(com.htc.launcher) (com.android.browser com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

139: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.06)

140: {(com.android.settings) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

141: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.06)

142: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher)} (support=0.05)

143: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

144: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.07)

145: {(com.android.settings) (com.android.settings) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

146: {(com.android.settings) (com.android.settings) (com.htc.launcher)
(com.android.browser) (com.android.browser)} (support=0.06)

147: {(com.android.settings) (com.android.settings) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

148: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.05)

149: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

150: {(com.android.browser com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

151: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.07)

152: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

153: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

154: {(com.android.browser) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

155: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

156: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

157: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

158: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

159: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

160: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

161: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

162: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

163: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

164: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

165: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

166: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

167: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

168: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

169: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

170: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

171: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

172: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

173: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

174: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

175: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

176: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

177: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)

(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

178: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

179: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

180: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

181: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.05)

182: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

183: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

184: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)

185: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

186: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

187: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

188: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.06)

189: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.android.browser) (com.htc.launcher)} (support=0.06)

190: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

191: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

192: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher)} (support=0.06)

193: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

194: {(com.htc.launcher) (com.android.settings) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.05)

195: {(com.android.settings) (com.android.browser) (com.android.browser)}

(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

196: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

197: {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

198: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.06)

199: {(com.android.settings) (com.android.settings) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

200: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)

201: {(com.android.browser) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

202: {(com.android.browser) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

203: {(com.android.browser) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.05)

204: {(com.android.browser) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

205: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

206: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

207: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

208: {(jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

209: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)

(jp.naver.line.android)} (support=0.05)

210: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.05)

211: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

212: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

213: {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

214: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.05)

215: {(com.htc.launcher) (com.android.browser) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.06)

216: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

217: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

218: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

219: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

220: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)

221: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

222: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)

(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.06)

223: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
 (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

224: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
 (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

225: {(com.htc.launcher) (com.htc.launcher) (com.android.browser)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.06)

226: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.07)

227: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.05)

228: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

229: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

230: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

231: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

232: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.05)

233: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

234: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)

235: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)

236: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)} (support=0.05)

237: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.08)

238: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

239: {(com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser) (com.android.browser)} (support=0.06)

240: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

241: {(com.htc.launcher) (com.android.browser) (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

242: {(com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

243: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

244: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

245: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

246: {(com.htc.launcher) (com.htc.launcher) (com.android.browser) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

247: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

248: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

249: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}

模式在 2013 Q2 但不在 2013 Q1 :

- 1: {(com.sonyericsson.home)} (support=0.07)
- 2: {(com.android.settings com.htc.launcher)} (support=0.08)
- 3: {(com.android.settings com.htc.launcher) (com.htc.launcher)} (support=0.06)

有相同序列但不同 support 的模式 :

- 1: 2013 Q1 : {(com.gau.go.launcherex)} (support=0.07)
- 1: 2013 Q2 : {(com.gau.go.launcherex)} (support=0.08)
- 2: 2013 Q1 : {(com.android.browser)} (support=0.23)
- 2: 2013 Q2 : {(com.android.browser)} (support=0.17)
- 3: 2013 Q1 : {(com.facebook.katana)} (support=0.14)
- 3: 2013 Q2 : {(com.facebook.katana)} (support=0.1)
- 4: 2013 Q1 : {(jp.naver.line.android)} (support=0.28)
- 4: 2013 Q2 : {(jp.naver.line.android)} (support=0.24)
- 5: 2013 Q1 : {(com.jiubang.goscreenlock)} (support=0.12)
- 5: 2013 Q2 : {(com.jiubang.goscreenlock)} (support=0.11)
- 6: 2013 Q1 : {(com.htc.launcher)} (support=0.65)
- 6: 2013 Q2 : {(com.htc.launcher)} (support=0.52)
- 7: 2013 Q1 : {(com.android.htcdialer)} (support=0.17)
- 7: 2013 Q2 : {(com.android.htcdialer)} (support=0.15)
- 8: 2013 Q1 : {(com.android.phone)} (support=0.26)
- 8: 2013 Q2 : {(com.android.phone)} (support=0.29)
- 9: 2013 Q1 : {(com.htc.android.worldclock)} (support=0.13)
- 9: 2013 Q2 : {(com.htc.android.worldclock)} (support=0.12)
- 10: 2013 Q1 : {(com.android.settings)} (support=0.24)
- 10: 2013 Q2 : {(com.android.settings)} (support=0.2)
- 11: 2013 Q1 : {(com.android.htccontacts)} (support=0.05)
- 11: 2013 Q2 : {(com.android.htccontacts)} (support=0.07)
- 12: 2013 Q1 : {(com.tencent.mm)} (support=0.07)
- 12: 2013 Q2 : {(com.tencent.mm)} (support=0.06)
- 13: 2013 Q1 : {(com.android.browser com.htc.launcher)} (support=0.13)
- 13: 2013 Q2 : {(com.android.browser com.htc.launcher)} (support=0.07)
- 14: 2013 Q1 : {(jp.naver.line.android com.htc.launcher)} (support=0.1)
- 14: 2013 Q2 : {(jp.naver.line.android com.htc.launcher)} (support=0.06)
- 15: 2013 Q1 : {(com.android.browser) (com.android.browser)} (support=0.15)

15: 2013 Q2 : {(com.android.browser) (com.android.browser)} (support=0.11)

16: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.2)

16: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.15)

17: 2013 Q1 : {(jp.naver.line.android) (com.htc.launcher)} (support=0.1)

17: 2013 Q2 : {(jp.naver.line.android) (com.htc.launcher)} (support=0.07)

18: 2013 Q1 : {(com.htc.launcher) (com.android.browser)} (support=0.08)

18: 2013 Q2 : {(com.htc.launcher) (com.android.browser)} (support=0.06)

19: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android)} (support=0.07)

19: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android)} (support=0.06)

20: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.23)

20: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.17)

21: 2013 Q1 : {(com.htc.launcher) (com.android.settings)} (support=0.08)

21: 2013 Q2 : {(com.htc.launcher) (com.android.settings)} (support=0.06)

22: 2013 Q1 : {(com.android.htcdialer) (com.android.phone)} (support=0.11)

22: 2013 Q2 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)

23: 2013 Q1 : {(com.android.phone) (com.htc.launcher)} (support=0.11)

23: 2013 Q2 : {(com.android.phone) (com.htc.launcher)} (support=0.08)

24: 2013 Q1 : {(com.android.settings) (com.android.browser)} (support=0.08)

24: 2013 Q2 : {(com.android.settings) (com.android.browser)} (support=0.06)

25: 2013 Q1 : {(com.android.settings) (com.htc.launcher)} (support=0.17)

25: 2013 Q2 : {(com.android.settings) (com.htc.launcher)} (support=0.1)

26: 2013 Q1 : {(com.android.settings) (com.android.settings)} (support=0.11)

26: 2013 Q2 : {(com.android.settings) (com.android.settings)} (support=0.08)

27: 2013 Q1 : {(com.android.mms) (com.htc.launcher)} (support=0.06)

27: 2013 Q2 : {(com.android.mms) (com.htc.launcher)} (support=0.05)

28: 2013 Q1 : {(com.android.browser com.htc.launcher) (com.android.browser)}
(support=0.09)

28: 2013 Q2 : {(com.android.browser com.htc.launcher) (com.android.browser)}
(support=0.06)

29: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.11)

29: 2013 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.08)

30: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.htc.launcher)}
(support=0.08)

30: 2013 Q2 : {(com.android.browser) (com.android.browser) (com.htc.launcher)}
(support=0.05)

31: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}

(support=0.16)

31: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.11)

32: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)}
 (support=0.1)

32: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)}
 (support=0.07)

33: 2013 Q1 : {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
 (support=0.09)

33: 2013 Q2 : {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)}
 (support=0.06)

34: 2013 Q1 : {(com.htc.launcher) (com.android.browser) (com.android.browser)}
 (support=0.12)

34: 2013 Q2 : {(com.htc.launcher) (com.android.browser) (com.android.browser)}
 (support=0.08)

35: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.13)

35: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.09)

36: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)}
 (support=0.08)

36: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)}
 (support=0.06)

37: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)}
 (support=0.07)

37: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)}
 (support=0.05)

38: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.16)

38: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.11)

39: 2013 Q1 : {(com.htc.launcher) (com.android.settings) (com.htc.launcher)}
 (support=0.14)

39: 2013 Q2 : {(com.htc.launcher) (com.android.settings) (com.htc.launcher)}
 (support=0.08)

40: 2013 Q1 : {(com.htc.launcher) (com.android.settings) (com.android.settings)}
 (support=0.08)

40: 2013 Q2 : {(com.htc.launcher) (com.android.settings) (com.android.settings)}

(support=0.05)

41: 2013 Q1 : {(com.android.settings) (com.android.browser) (com.android.browser)}
(support=0.1)

41: 2013 Q2 : {(com.android.settings) (com.android.browser) (com.android.browser)}
(support=0.07)

42: 2013 Q1 : {(com.android.settings) (com.htc.launcher) (com.android.browser)}
(support=0.08)

42: 2013 Q2 : {(com.android.settings) (com.htc.launcher) (com.android.browser)}
(support=0.06)

43: 2013 Q1 : {(com.android.settings) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

43: 2013 Q2 : {(com.android.settings) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

44: 2013 Q1 : {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.13)

44: 2013 Q2 : {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.08)

45: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.09)

45: 2013 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)

46: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.13)

46: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.09)

47: 2013 Q1 : {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.09)

47: 2013 Q2 : {(com.htc.launcher) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.06)

48: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.11)

48: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

49: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.08)

49: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(com.htc.launcher)} (support=0.05)

50: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)}

(jp.naver.line.android)} (support=0.11)

50: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.07)

51: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.13)

51: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.09)

52: 2013 Q1 : {(com.htc.launcher) (com.android.settings) (com.android.settings)
(com.htc.launcher)} (support=0.1)

52: 2013 Q2 : {(com.htc.launcher) (com.android.settings) (com.android.settings)
(com.htc.launcher)} (support=0.06)

53: 2013 Q1 : {(com.android.settings) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.07)

53: 2013 Q2 : {(com.android.settings) (com.android.browser) (com.android.browser)
(com.android.browser)} (support=0.05)

54: 2013 Q1 : {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.08)

54: 2013 Q2 : {(com.android.settings) (com.htc.launcher) (com.android.browser)
(com.android.browser)} (support=0.06)

55: 2013 Q1 : {(com.android.settings) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.08)

55: 2013 Q2 : {(com.android.settings) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)

56: 2013 Q1 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.08)

56: 2013 Q2 : {(com.android.browser) (com.android.browser) (com.android.browser)
(com.android.browser) (com.android.browser)} (support=0.05)

57: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.11)

57: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)

58: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

58: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

59: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.1)

59: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)

(jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
60: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.11)
60: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher)} (support=0.07)
61: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.1)
61: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
62: 2013 Q1 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)
62: 2013 Q2 : {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
63: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)
63: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)
64: 2013 Q1 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.09)
64: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)
65: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.08)
65: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android)} (support=0.06)
66: 2013 Q1 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.08)
66: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
(jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

附錄十二：2013 Q2 到 2013 Q3 的 模式的變化

模式在 2013 Q2 但不在 2013 Q3：

- 1: {(com.gau.go.launcherex)}(support=0.08)
- 2: {(com.jiubang.goscreenlock)} (support=0.11)
- 3: {(com.android.settings com.htc.launcher)} (support=0.08)
- 4: {(com.android.browser com.htc.launcher)} (support=0.07)
- 5: {(jp.naver.line.android com.htc.launcher)} (support=0.06)
- 6: {(com.android.mms) (com.android.mms)} (support=0.07)
- 7: {(com.android.mms) (com.htc.launcher)} (support=0.05)
- 8: {(com.android.settings) (com.android.browser)} (support=0.06)
- 9: {(jp.naver.line.android) (com.htc.launcher)} (support=0.07)
- 10: {(com.htc.launcher) (com.android.settings)} (support=0.06)
- 11: {(com.htc.launcher) (com.android.browser)} (support=0.06)
- 12: {(com.htc.launcher) (jp.naver.line.android)} (support=0.06)
- 13: {(com.android.settings com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 14: {(com.android.browser com.htc.launcher) (com.android.browser)}
(support=0.06)
- 15: {(com.android.settings) (com.android.settings) (com.htc.launcher)}
(support=0.08)
- 16: {(com.android.settings) (com.android.browser) (com.android.browser)}
(support=0.07)
- 17: {(com.android.settings) (com.htc.launcher) (com.android.browser)}
(support=0.06)
- 18: {(com.android.settings) (com.htc.launcher) (com.htc.launcher)} (support=0.05)
- 19: {(com.android.browser) (com.android.browser) (com.android.browser)}
(support=0.08)
- 20: {(com.android.browser) (com.android.browser) (com.htc.launcher)}
(support=0.05)
- 21: {(jp.naver.line.android) (jp.naver.line.android) (com.htc.launcher)}
(support=0.07)
- 22: {(jp.naver.line.android) (com.htc.launcher) (com.htc.launcher)} (support=0.06)

- 23: {(com.htc.launcher) (com.android.settings) (com.android.settings)}
 (support=0.05)
- 24: {(com.htc.launcher) (com.android.settings) (com.htc.launcher)} (support=0.08)
- 25: {(com.htc.launcher) (com.android.browser) (com.android.browser)}
 (support=0.08)
- 26: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)}
 (support=0.09)
- 27: {(com.htc.launcher) (jp.naver.line.android) (com.htc.launcher)} (support=0.06)
- 28: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)} (support=0.05)
- 29: {(com.android.settings) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.05)
- 30: {(com.android.settings) (com.htc.launcher) (com.android.browser)
 (com.android.browser)} (support=0.06)
- 31: {(com.android.settings) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
 (support=0.05)
- 32: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.06)
- 33: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.09)
- 34: {(com.htc.launcher) (com.android.settings) (com.android.settings)
 (com.htc.launcher)} (support=0.06)
- 35: {(com.htc.launcher) (com.android.browser) (com.android.browser)
 (com.android.browser)} (support=0.06)
- 36: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.07)
- 37: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (com.htc.launcher)} (support=0.05)
- 38: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.07)
- 39: {(com.android.browser) (com.android.browser) (com.android.browser)
 (com.android.browser) (com.android.browser)} (support=0.05)
- 40: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.08)
- 41: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
- 42: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
- 43: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}

(com.htc.launcher)} (support=0.07)
 44: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
 45: {(com.htc.launcher) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.06)
 46: {(com.htc.launcher) (com.htc.launcher) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)
 47: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
 (com.htc.launcher) (com.htc.launcher)} (support=0.05)
 48: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android)} (support=0.06)
 49: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)
 (jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

模式在 2013 Q3 但不在 2013 Q2 :

1: {(com.android.camera)} (support=0.05)

有相同序列但不同 support 的模式 :

1: 2013 Q2 : {(com.android.mms)} (support=0.12)
 1: 2013 Q3 : {(com.android.mms)} (support=0.09)
 2: 2013 Q2 : {(com.android.htcdialer)} (support=0.15)
 2: 2013 Q3 : {(com.android.htcdialer)} (support=0.08)
 3: 2013 Q2 : {(com.android.phone)} (support=0.29)
 3: 2013 Q3 : {(com.android.phone)} (support=0.27)
 4: 2013 Q2 : {(com.android.htccontacts)} (support=0.07)
 4: 2013 Q3 : {(com.android.htccontacts)} (support=0.08)
 5: 2013 Q2 : {(com.android.settings)}(support=0.2)
 5: 2013 Q3 : {(com.android.settings)}(support=0.14)
 6: 2013 Q2 : {(com.android.browser)} (support=0.17)
 6: 2013 Q3 : {(com.android.browser)} (support=0.09)
 7: 2013 Q2 : {(jp.naver.line.android)} (support=0.24)
 7: 2013 Q3 : {(jp.naver.line.android)} (support=0.22)
 8: 2013 Q2 : {(com.facebook.katana)} (support=0.1)
 8: 2013 Q3 : {(com.facebook.katana)} (support=0.15)

9: 2013 Q2 : {(com.htc.android.worldclock)} (support=0.12)

9: 2013 Q3 : {(com.htc.android.worldclock)} (support=0.09)

10: 2013 Q2 : {(com.htc.launcher)} (support=0.52)

10: 2013 Q3 : {(com.htc.launcher)} (support=0.48)

11: 2013 Q2 : {(com.tencent.mm)} (support=0.06)

11: 2013 Q3 : {(com.tencent.mm)} (support=0.05)

12: 2013 Q2 : {(com.sonyericsson.home)} (support=0.07)

12: 2013 Q3 : {(com.sonyericsson.home)} (support=0.17)

13: 2013 Q2 : {(com.android.htcdialer) (com.android.phone)} (support=0.1)

13: 2013 Q3 : {(com.android.htcdialer) (com.android.phone)} (support=0.05)

14: 2013 Q2 : {(com.android.phone) (com.android.phone)} (support=0.07)

14: 2013 Q3 : {(com.android.phone) (com.android.phone)} (support=0.05)

15: 2013 Q2 : {(com.android.phone) (com.htc.launcher)} (support=0.08)

15: 2013 Q3 : {(com.android.phone) (com.htc.launcher)} (support=0.07)

16: 2013 Q2 : {(com.android.settings) (com.android.settings)} (support=0.08)

16: 2013 Q3 : {(com.android.settings) (com.android.settings)} (support=0.05)

17: 2013 Q2 : {(com.android.settings) (com.htc.launcher)} (support=0.1)

17: 2013 Q3 : {(com.android.settings) (com.htc.launcher)} (support=0.07)

18: 2013 Q2 : {(com.android.browser) (com.android.browser)} (support=0.11)

18: 2013 Q3 : {(com.android.browser) (com.android.browser)} (support=0.05)

19: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.15)

19: 2013 Q3 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.09)

20: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.17)

20: 2013 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.13)

21: 2013 Q2 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.11)

21: 2013 Q3 : {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.06)

22: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.11)

22: 2013 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)

23: 2013 Q2 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.09)

23: 2013 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)
(com.htc.launcher)} (support=0.05)

附錄十三：2013 Q3 到 2013 Q4 的 模式的變化

模式在 2013 Q3 但不在 2013 Q4：

- 1: {(com.android.camera)} (support=0.05)
- 2: {(com.android.htcdialer)} (support=0.08)
- 3: {(com.tencent.mm)} (support=0.05)
- 4: {(com.android.browser) (com.android.browser)} (support=0.05)
- 5: {(com.android.phone) (com.htc.launcher)} (support=0.07)
- 6: {(com.android.phone) (com.android.phone)} (support=0.05)
- 7: {(com.android.settings) (com.htc.launcher)} (support=0.07)
- 8: {(com.android.settings) (com.android.settings)} (support=0.05)
- 9: {(com.android.htcdialer) (com.android.phone)} (support=0.05)
- 10: {(jp.naver.line.android) (jp.naver.line.android) (jp.naver.line.android)}
(support=0.06)
- 11: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

模式在 2013 Q4 但不在 2013 Q3：

- 1: {(com.gau.go.launcherex)}(support=0.06)
- 2: {(com.jiubang.goscreenlock)} (support=0.06)
- 3: {(com.instagram.android)}(support=0.05)
- 4: {(jp.naver.line.android) (com.htc.launcher)} (support=0.06)

有相同序列但不同 support 的模式：

- 1: 2013 Q3： {(com.facebook.katana)} (support=0.15)
- 1: 2013 Q4： {(com.facebook.katana)} (support=0.2)
- 2: 2013 Q3： {(com.android.htccontacts)} (support=0.08)
- 2: 2013 Q4： {(com.android.htccontacts)} (support=0.06)
- 3: 2013 Q3： {(com.android.browser)} (support=0.09)
- 3: 2013 Q4： {(com.android.browser)} (support=0.08)

4: 2013 Q3 : {(jp.naver.line.android)} (support=0.22)
4: 2013 Q4 : {(jp.naver.line.android)} (support=0.25)
5: 2013 Q3 : {(com.htc.launcher)} (support=0.48)
5: 2013 Q4 : {(com.htc.launcher)} (support=0.41)
6: 2013 Q3 : {(com.android.mms)} (support=0.09)
6: 2013 Q4 : {(com.android.mms)} (support=0.06)
7: 2013 Q3 : {(com.android.phone)} (support=0.27)
7: 2013 Q4 : {(com.android.phone)} (support=0.22)
8: 2013 Q3 : {(com.android.settings)}(support=0.14)
8: 2013 Q4 : {(com.android.settings)}(support=0.11)
9: 2013 Q3 : {(com.sonyericsson.home)} (support=0.17)
9: 2013 Q4 : {(com.sonyericsson.home)} (support=0.12)
10: 2013 Q3 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.09)
10: 2013 Q4 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
11: 2013 Q3 : {(com.htc.launcher) (com.htc.launcher)} (support=0.13)
11: 2013 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.1)
12: 2013 Q3 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.08)
12: 2013 Q4 : {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)}
(support=0.05)

附錄十四：2013 Q4 到 2014 Q1 的 模式的變化

模式在 2013 Q4 但不在 2014 Q1：

- 1: {(com.htc.android.worldclock)} (support=0.09)
- 2: {(com.android.mms)} (support=0.06)
- 3: {(com.gau.go.launcherex)} (support=0.06)
- 4: {(com.jiubang.goscreenlock)} (support=0.06)
- 5: {(com.htc.launcher) (com.htc.launcher) (com.htc.launcher)} (support=0.05)

模式在 2014 Q1 但不在 2013 Q4：

- 1: {(com.sec.android.app.launcher)} (support=0.26)
- 2: {(com.android.launcher)} (support=0.08)
- 3: {(com.facebook.orca)} (support=0.06)
- 4: {(com.android.systemui)} (support=0.09)
- 5: {(mong.moptt)} (support=0.06)
- 6: {(jp.naver.SJLGCOFFEE)} (support=0.06)
- 7: {(com.android.chrome)} (support=0.07)
- 8: {(jp.naver.line.android) (com.facebook.katana)} (support=0.05)
- 9: {(jp.naver.line.android) (com.sec.android.app.launcher)} (support=0.07)
- 10: {(com.facebook.katana) (com.sec.android.app.launcher)} (support=0.07)
- 11: {(com.sec.android.app.launcher) (com.sec.android.app.launcher)} (support=0.07)
- 12: {(com.instagram.android) (com.sec.android.app.launcher)} (support=0.06)
- 13: {(com.sec.android.app.launcher) (com.sec.android.app.launcher) (com.sec.android.app.launcher)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2013 Q4： {(com.android.settings)} (support=0.11)
- 1: 2014 Q1： {(com.android.settings)} (support=0.1)
- 2: 2013 Q4： {(com.android.phone)} (support=0.22)
- 2: 2014 Q1： {(com.android.phone)} (support=0.2)

3: 2013 Q4 : {(com.htc.launcher)} (support=0.41)
3: 2014 Q1 : {(com.htc.launcher)} (support=0.3)
4: 2013 Q4 : {(jp.naver.line.android)} (support=0.25)
4: 2014 Q1 : {(jp.naver.line.android)} (support=0.32)
5: 2013 Q4 : {(com.android.browser)} (support=0.08)
5: 2014 Q1 : {(com.android.browser)} (support=0.09)
6: 2013 Q4 : {(com.facebook.katana)} (support=0.2)
6: 2014 Q1 : {(com.facebook.katana)} (support=0.3)
7: 2013 Q4 : {(com.android.htccontacts)} (support=0.06)
7: 2014 Q1 : {(com.android.htccontacts)} (support=0.05)
8: 2013 Q4 : {(com.sonyericsson.home)} (support=0.12)
8: 2014 Q1 : {(com.sonyericsson.home)} (support=0.09)
9: 2013 Q4 : {(com.instagram.android)} (support=0.05)
9: 2014 Q1 : {(com.instagram.android)} (support=0.12)
10: 2013 Q4 : {(com.htc.launcher) (com.htc.launcher)} (support=0.1)
10: 2014 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.07)
11: 2013 Q4 : {(jp.naver.line.android) (com.htc.launcher)} (support=0.06)
11: 2014 Q1 : {(jp.naver.line.android) (com.htc.launcher)} (support=0.05)
12: 2013 Q4 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.07)
12: 2014 Q1 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

附錄十五：2014 Q1 到 2014 Q2 的 模式的變化

模式在 2014 Q1 但不在 2014 Q2：

- 1: {(com.android.launcher)} (support=0.08)
- 2: {(jp.naver.SJLGCOFFEE)} (support=0.06)
- 3: {(jp.naver.line.android) (com.htc.launcher)} (support=0.05)
- 4: {(jp.naver.line.android) (com.facebook.katana)} (support=0.05)
- 5: {(jp.naver.line.android) (com.sec.android.app.launcher)} (support=0.07)
- 6: {(com.sec.android.app.launcher) (com.sec.android.app.launcher)
(com.sec.android.app.launcher)} (support=0.05)

模式在 2014 Q2 但不在 2014 Q1：

- 1: {(com.facebook.katana) (com.facebook.katana)} (support=0.05)
- 2: {(com.sonyericsson.home) (com.sonyericsson.home)} (support=0.05)

有相同序列但不同 support 的模式：

- 1: 2014 Q1： {(com.android.settings)}(support=0.1)
- 1: 2014 Q2： {(com.android.settings)}(support=0.07)
- 2: 2014 Q1： {(jp.naver.line.android)}(support=0.32)
- 2: 2014 Q2： {(jp.naver.line.android)}(support=0.27)
- 3: 2014 Q1： {(com.htc.launcher)} (support=0.3)
- 3: 2014 Q2： {(com.htc.launcher)} (support=0.29)
- 4: 2014 Q1： {(com.facebook.katana)} (support=0.3)
- 4: 2014 Q2： {(com.facebook.katana)} (support=0.34)
- 5: 2014 Q1： {(com.sonyericsson.home)} (support=0.09)
- 5: 2014 Q2： {(com.sonyericsson.home)} (support=0.17)
- 6: 2014 Q1： {(com.sec.android.app.launcher)} (support=0.26)
- 6: 2014 Q2： {(com.sec.android.app.launcher)} (support=0.27)
- 7: 2014 Q1： {(com.instagram.android)} (support=0.12)
- 7: 2014 Q2： {(com.instagram.android)} (support=0.11)

8: 2014 Q1 : {(com.facebook.orca)} (support=0.06)

8: 2014 Q2 : {(com.facebook.orca)} (support=0.05)

9: 2014 Q1 : {(com.android.systemui)} (support=0.09)

9: 2014 Q2 : {(com.android.systemui)} (support=0.05)

10: 2014 Q1 : {(com.android.browser)} (support=0.09)

10: 2014 Q2 : {(com.android.browser)} (support=0.06)

11: 2014 Q1 : {(com.android.chrome)} (support=0.07)

11: 2014 Q2 : {(com.android.chrome)} (support=0.11)

12: 2014 Q1 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.06)

12: 2014 Q2 : {(jp.naver.line.android) (jp.naver.line.android)} (support=0.05)

13: 2014 Q1 : {(com.htc.launcher) (com.htc.launcher)} (support=0.07)

13: 2014 Q2 : {(com.htc.launcher) (com.htc.launcher)} (support=0.06)

14: 2014 Q1 : {(com.facebook.katana) (com.sec.android.app.launcher)}
(support=0.07)

14: 2014 Q2 : {(com.facebook.katana) (com.sec.android.app.launcher)}
(support=0.05)

15: 2014 Q1 : {(com.sec.android.app.launcher) (com.sec.android.app.launcher)}
(support=0.07)

15: 2014 Q2 : {(com.sec.android.app.launcher) (com.sec.android.app.launcher)}
(support=0.06)

16: 2014 Q1 : {(com.instagram.android) (com.sec.android.app.launcher)}
(support=0.06)

16: 2014 Q2 : {(com.instagram.android) (com.sec.android.app.launcher)}
(support=0.05)

附錄十六：2014 Q2 到 2014 Q3 的 模式的變化

模式在 2014 Q2 但不在 2014 Q3：

- 1: {(com.android.htccontacts)} (support=0.05)
- 2: {(com.android.systemui)} (support=0.05)
- 3: {(com.htc.launcher) (com.htc.launcher)} (support=0.06)
- 4: {(com.facebook.katana) (com.facebook.katana)} (support=0.05)
- 5: {(com.facebook.katana) (com.sec.android.app.launcher)} (support=0.05)
- 6: {(com.sec.android.app.launcher) (com.sec.android.app.launcher)} (support=0.06)
- 7: {(com.instagram.android) (com.sec.android.app.launcher)} (support=0.05)
- 8: {(jp.naver.line.android) (jp.naver.line.android)} (support=0.05)
- 9: {(com.sonyericsson.home) (com.sonyericsson.home)} (support=0.05)

模式在 2014 Q3 但不在 2014 Q2：

- 1: {(com.google.android.youtube)} (support=0.06)
- 2: {(com.dlto.atom.launcher)} (support=0.07)

有相同序列但不同 support 的模式：

- 1: 2014 Q2： {(com.android.phone)} (support=0.2)
- 1: 2014 Q3： {(com.android.phone)} (support=0.13)
- 2: 2014 Q2： {(com.htc.launcher)} (support=0.29)
- 2: 2014 Q3： {(com.htc.launcher)} (support=0.14)
- 3: 2014 Q2： {(com.facebook.katana)} (support=0.34)
- 3: 2014 Q3： {(com.facebook.katana)} (support=0.29)
- 4: 2014 Q2： {(com.sec.android.app.launcher)} (support=0.27)
- 4: 2014 Q3： {(com.sec.android.app.launcher)} (support=0.24)
- 5: 2014 Q2： {(com.instagram.android)} (support=0.11)
- 5: 2014 Q3： {(com.instagram.android)} (support=0.09)
- 6: 2014 Q2： {(jp.naver.line.android)} (support=0.27)
- 6: 2014 Q3： {(jp.naver.line.android)} (support=0.23)

7: 2014 Q2 : {(mong.moptt)} (support=0.06)
7: 2014 Q3 : {(mong.moptt)} (support=0.05)
8: 2014 Q2 : {(com.android.chrome)} (support=0.11)
8: 2014 Q3 : {(com.android.chrome)} (support=0.13)
9: 2014 Q2 : {(com.facebook.orca)} (support=0.05)
9: 2014 Q3 : {(com.facebook.orca)} (support=0.06)
10: 2014 Q2 : {(com.sonyericsson.home)} (support=0.17)
10: 2014 Q3 : {(com.sonyericsson.home)} (support=0.13)

附錄十七：2014 Q3 到 2014 Q4 的 模式的變化

模式在 2014 Q3 但不在 2014 Q4：

- 1: {{(com.htc.launcher)} (support=0.14)}
- 2: {{(com.facebook.katana)} (support=0.29)}
- 3: {{(com.sec.android.app.launcher)} (support=0.24)}
- 4: {{(com.facebook.orca)} (support=0.06)}
- 5: {{(com.instagram.android)} (support=0.09)}
- 6: {{(com.sonyericsson.home)} (support=0.13)}
- 7: {{(mong.moptt)} (support=0.05)}
- 8: {{(com.android.browser)} (support=0.06)}
- 9: {{(com.android.settings)} (support=0.07)}
- 10: {{(com.android.chrome)} (support=0.13)}
- 11: {{(com.google.android.youtube)} (support=0.06)}
- 12: {{(com.dlto.atom.launcher)} (support=0.07)}

模式在 2014 Q4 但不在 2014 Q3：

- 1: {{(com.google.android.gsf)} (support=0.2)}
- 2: {{(jp.naver.line.android) (jp.naver.line.android)} (support=0.2)}

有相同序列但不同 support 的模式：

- 1: 2014 Q3： {{(jp.naver.line.android)} (support=0.23)}
- 1: 2014 Q4： {{(jp.naver.line.android)} (support=0.2)}
- 2: 2014 Q3： {{(com.android.phone)} (support=0.13)}
- 2: 2014 Q4： {{(com.android.phone)} (support=0.4)}

科技部補助計畫衍生研發成果推廣資料表

日期:2015/09/30

科技部補助計畫	計畫名稱: 智慧型手機應用程式使用模式探勘 (II)
	計畫主持人: 徐國偉
	計畫編號: 103-2221-E-004-015- 學門領域: 資料庫與資料探勘
無研發成果推廣資料	

103年度專題研究計畫研究成果彙整表

計畫主持人：徐國偉		計畫編號：103-2221-E-004-015-					
計畫名稱：智慧型手機應用程式使用模式探勘 (II)							
成果項目		量化			單位	備註 (質化說明： 如數個計畫共同成果、成果列為該期刊之封面故事...等)	
		實際已達成數 (被接受或已發表)	預期總達成數 (含實際已達成數)	本計畫實際貢獻百分比			
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 (本國籍)	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 (外國籍)	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
其他成果 (無法以量化表達之 成果如辦理學術活動 、獲得獎項、重要國 際合作、研究成果國 際影響力及其他協助 產業技術發展之具體 效益事項等，請以文 字敘述填列。)		無					

	成果項目	量化	名稱或內容性質簡述
科 教 處 計 畫 加 填 項 目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與(閱聽)人數	0	

科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以100字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文： 已發表 未發表之文稿 撰寫中 無

專利： 已獲得 申請中 無

技轉： 已技轉 洽談中 無

其他：（以100字為限）

仍在整理成果，準備後續發表。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以500字為限）

研究內容與計畫書大致相符。主持人正在整理並加強其他部分與結果，正在撰寫論文，預計為本計畫帶來更多成果。本計畫的研究成果可協助智慧型手機製造商，還有應用程式開發人員，更加了解使用者的使用行為與習慣，所以本計畫具有實用價值。本計畫的研究成果，或可做為前置處理工具，協助研究者或開發人員，進行更進階的資料探勘與分析工作。就社會影響而言，本計畫的研究成果，可當作其他手機相關研究之參考資料。