

建築風格作為證據

《加州風格》

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Abstract. 房源描述中對建築風格的命名往往較為籠統，而像「工匠風格平房」這樣的單一標籤，則將房屋的本質與其形制及裝飾元素混為一談。本文介紹了一種以 Prolog 編寫的本體論，該本體論從四大獨立維度——運動、風格、形式與細節——來記錄建築物的建築特徵。其涵蓋了加州常見的建築風格，從維多利亞風格、時期復興風格、源自西班牙風格的建築群、現代風格，到戰後本土風格。該本體將關聯與推導區分開來。僅有一種關係——即某種風格代表某個建築運動——允許進行推論；典型形式、典型細節及常見混淆則被記錄為證據，但不會據此推導出任何結論。觀察者所見的細節可與可能解釋這些細節的建築風格進行權重比對，其中每個細節的權重是根據聲稱包含該細節的風格數量來計算，而非透過擬合得出，因此可在報告中展示並辯護證據的歸屬。本文還闡述了防止風格詞彙（例如「工匠級品質」或「都鐸大道」）修飾房屋以外之物時，仍被視為主張某種風格的限制機制，並記錄了此分類體系中已知的局限與爭議點。

Keywords: 建築風格、本體論、Prolog、評估、房產清單備註、加利福尼亞州

1 簡介

本文說明程式如何從程式碼列印內容中辨識建築風格、相關欄位的意義，以及這些結果的可信度為何。本文旨在供使用此類輸出結果的評估師，以及負責維護其背後規則的人士參考。

這項工作由兩個檔案負責，值得了解它們各自的用途：

file	該文章解答的問題：
mls_remarks.pl	那句話是這麼說的嗎？
architectural_styles.pl	這是什麼？又與什麼有關？

第一項是語法：它讀取文字並輸出欄位。第二項是知識庫：定義、時期、特徵與關聯性。兩者之所以分開處理，是因為它們因不同原因而改變，且變化速度各異——「工藝師 (Craftsman)」的新表述方式屬於語法變更；而認定「草原風格 (Prairie)」並非「藝術與工藝 (Arts and Crafts)」的子類，則屬於本體論的變更（即術語及其關聯方式的結構化清單）。

本文中的每條查詢皆可執行。載入本體後，可將以 ?- 開頭的程式碼區塊貼上，例如在 Trealla Prolog 中：

```
tpl -q architectural_styles.pl
```

2 核心概念：四大軸線

建築分類中最常見的錯誤——也是多重上市服務（MLS）的描述中屢見不鮮的錯誤——就是將風格、形式與細節視為同一回事。事實上，它們並非同一回事。一棟房屋同時具備這三者，且各自獨立。

MOVEMENT	a movement, era or regional tradition expressed BY styles; not itself a style arts_and_crafts, victorian, bay_tradition
STYLE	a specific design vocabulary craftsman, italianate, spanish_colonial, eichler
FORM	the shape of the building bungalow, foursquare, ranch, farmhouse, hacienda
DETAIL	a visible feature exposed_rafters, half_timbering, mansard_roof

因此，一家工廠能同時在多個軸線上生產旗幟：

```
"Classic 1912 Craftsman bungalow with art glass and deep eaves."
```

```
movement_arts_and_crafts = true
style_craftsman           = true
form_bungalow             = true
detail_art_glass          = true
detail_deep_eaves         = true
```

這比強行設定單一數值 "Craftsman Bungalow" 來得精確得多，因為它也能呈現軸線分開的情況：

```
"Two story Arts and Crafts home."      movement only — not a bungalow
"Charming California bungalow."        form only — not Arts and Crafts
"Built-ins and exposed rafters."        detail only — asserts no style at all
"Contemporary home on a ranch plan."    style_contemporary + form_ranch
```

2.1 正交，而非互獨立

這些軸線是分別記錄的。它們在統計上 並非相互獨立，而本本體論也並未聲稱它們是相互獨立的。「工匠風格」通常指平房；「西班牙殖民風格」通常具有瓦片屋頂。這些關聯是真實且有用的。

這條規則是：關聯即為證據，絕非必然推論（即自動結論：若 A，則必然為 B）：

```
P(bungalow | craftsman) is high
craftsman -> bungalow   is false
```

（註：大多數工匠風格住宅都是平房；但「每棟工匠風格住宅都是平房」這一說法並不正確。）如果本體論編碼了後者，資料集中的每棟工匠風格住宅都會在無聲無息間被斷言為平房——包括那些根本不屬於此類的兩層樓工匠風格住宅。反向規則的情況會更糟：每棟平房——包括芝加哥平房和普通建商作品在內——都會被斷言為「工匠風格」，並隨之被斷言為「藝術與工藝風格」。這種關聯被保留在資料中，供迴歸分析找出；而非由規則人為製造，因為若由規則製造，此關聯將無法與證據區分。

3 閱讀專欄文章

每列都存在於每一行中，且具有預設值，因此缺失值絕不代表「欄位不存在」。

前綴	計數	類型	預設
movement_	3	布林值	false
style_	33	布林值	false
form_	5	布林值	false
detail_	44	布林值	false

同一軸線上數面旗幟同時懸掛是正常現象，並非錯誤。1900 年至 1930 年間的灣區建築，經常融合了工匠風格與木瓦風格、都鐸復興或殖民復興等元素；在那個時期，風格融合是常態，而這些欄目所記載的內容正是文本中實際所述。

4 屋頂與體量造型

屋頂造型是區分幾種風格時最可靠的單一辨識特徵，這些風格若不加以區分，很容易被混淆，因此值得花時間學習辨識。

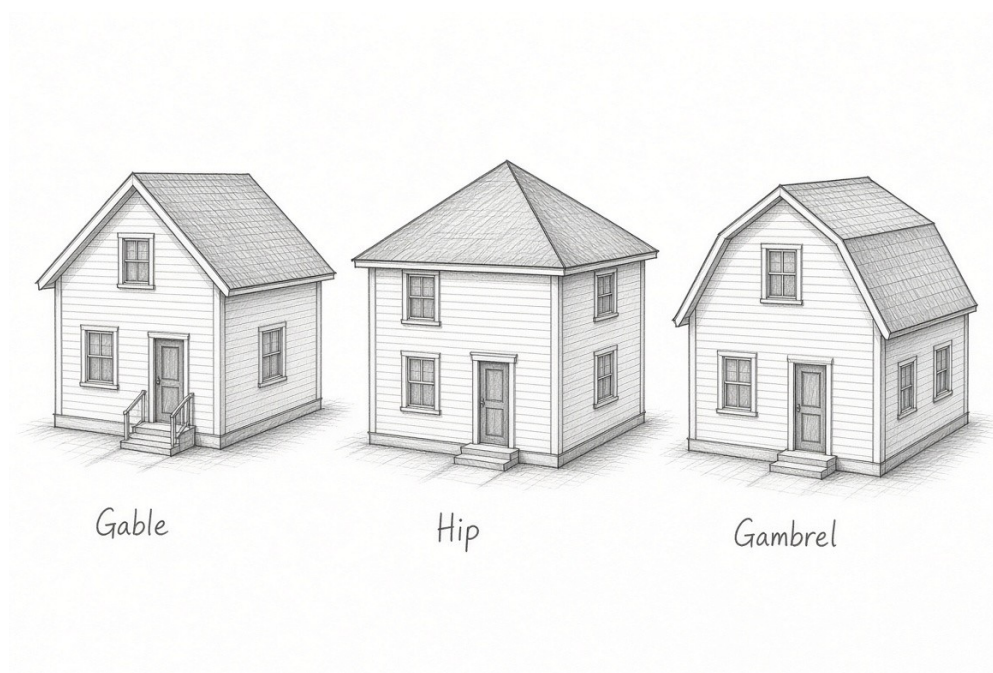


Figure 1: 山牆式、四坡式與雙坡式。其中山牆式最為常見；四坡式屋頂則是草原風格與法式諾曼第風格（以及方正式建築）的典型特徵；而在本本體論中，雙坡式屋頂僅見於荷蘭殖民風格。

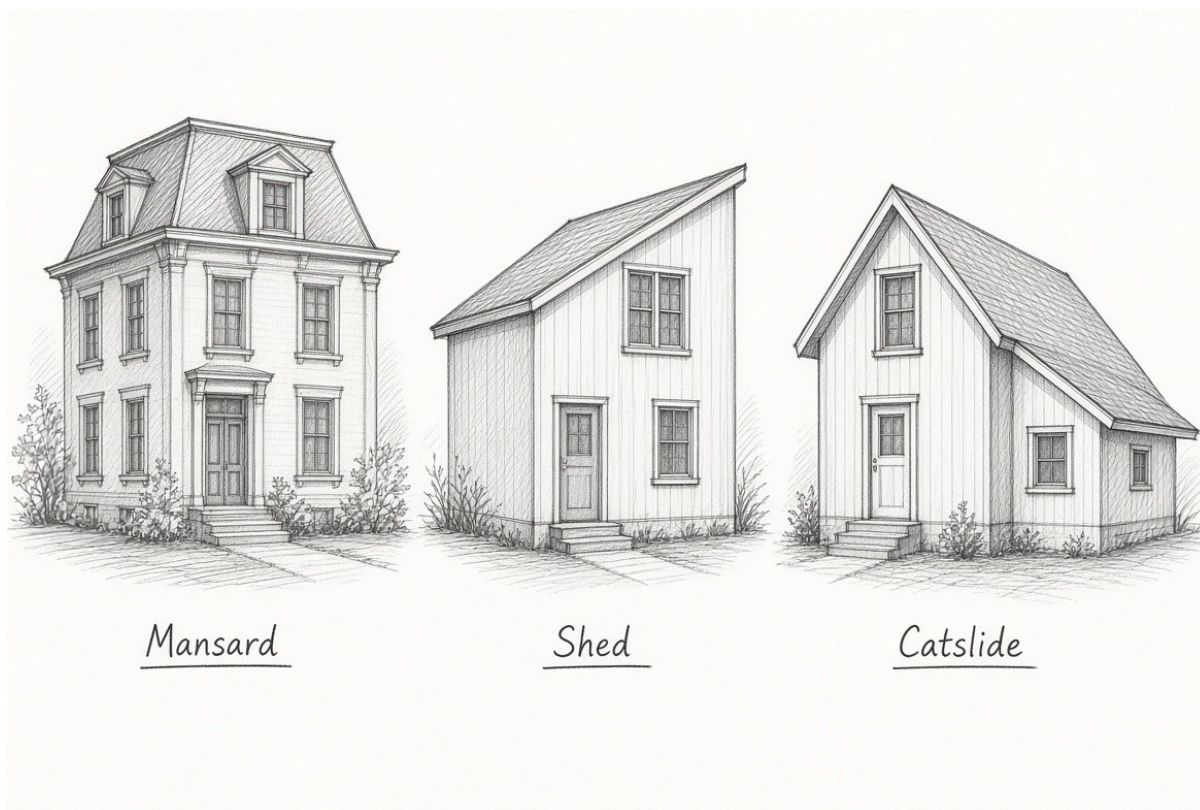


Figure 2: 曼薩德屋頂、單坡屋頂與雙坡屋頂。曼薩德屋頂是「第二帝國風格」的標誌，但本體論尚未納入此風格；單坡屋頂屬於「海牧場」及「單坡屋頂風格」；雙坡屋頂則是英式鄉村小屋的顯著特徵。

其中有兩項區別確實發揮了實際作用：

- 陡峭的山牆與陡峭的四坡屋頂，是區分都鐸復興風格（山牆式，通常帶有半木結構）與法式諾曼第風格（四坡屋頂式，通常帶有圓形入口塔樓）的關鍵特徵。但在房產描述中，這兩種風格通常都被統稱為「都鐸風格」。
- 而「貓滑頂」則是區分英式小屋與上述兩種風格的特徵。

山牆、四坡屋頂、雙坡屋頂和貓滑屋頂均被歸類為細節（單坡屋頂和曼薩爾屋頂亦然），其權重分配則決定了其分數：在此本體中，僅有「荷蘭殖民風格」聲稱採用雙坡屋頂，因此佔滿分；四坡屋頂與貓滑屋頂各被兩種風格聲稱採用，各佔半分；而山牆屋頂則被四種風格聲稱採用，佔四分之一分。此即正確的排序。山牆是本州最常見的屋頂形式，因此所傳達的資訊相對有限。雙坡屋頂所傳達的資訊最多，但僅限於本本體論範圍內：木瓦風格（Shingle Style）亦採用此形式（參見圖 9），該風格是「typical_detail/2」的候選新增項目。

體量（建築物的整體三維體積與佈局）區分了兩種最常見的歷史建築形式：

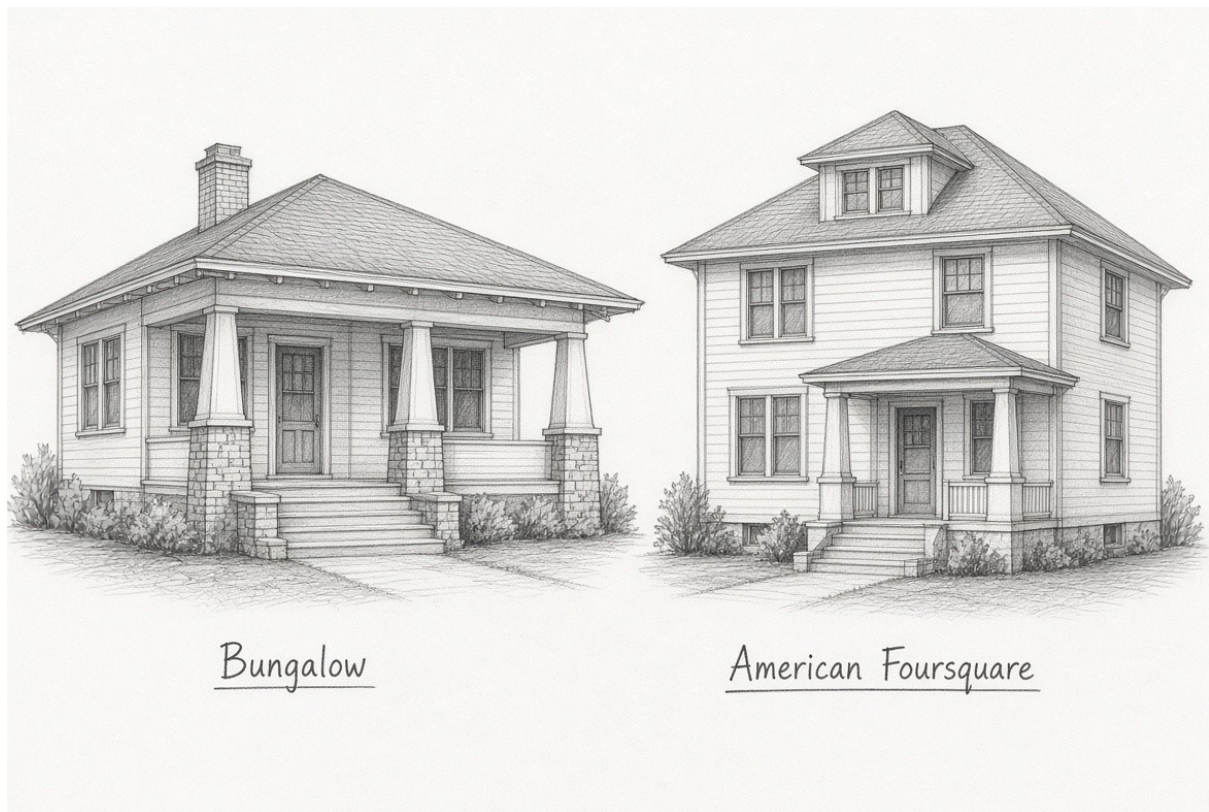


Figure 3: 兩種最常見的歷史建築形式：平房（bungalow）與美式四方屋（American Foursquare）。

這兩者均不代表某種建築風格。平房可能是工匠風格、西班牙風格，或是普通建商所建的普通住宅；而四方屋則曾以工匠風格、大草原風格、殖民復興風格以及本土民居風格等各種形式建造。

5 這些動作

三件，且每件都屬於不同類型的作品——這一點本身就值得注意，因為這正是它們之所以共享同一軸線，而非散見於各類風格之中的原因。

5.1 藝術與工藝

十九世紀末英國的一場設計運動，而非某種建築風格：這是對華麗的維多利亞式設計與大量生產的工業化建築的一種反動，強調簡約、工藝、天然材料以及與周遭環境相襯的建築。

有多種風格能體現這種特質，這正是它之所以屬於「運動」範疇的原因。在美國，與之最密切相關的風格是「工匠風格」，而在加州，最常見的則是「工匠風格平房」——但格林兄弟（Greene and Greene）設計的極致平房、受斯蒂克利（Stickley）風格影響的「四方屋」，以及兩層樓高的工藝美術風格住宅，全都屬於工藝美術風格，而其中沒有一棟是該詞彙通常所指的那種緊湊型平房。

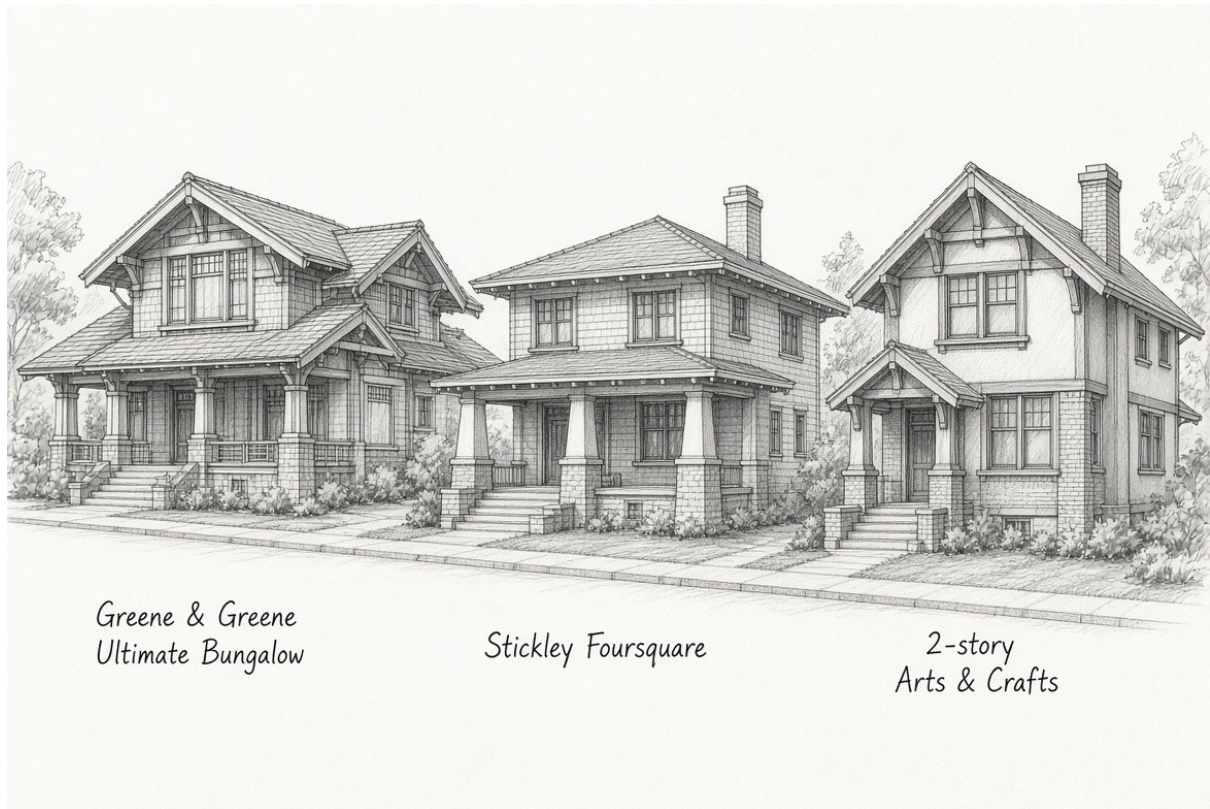


Figure 4: 一個流派、三棟建築，卻沒有一棟是這個詞彙通常所指的緊湊型平房——第一棟是「終極平房」，這個術語恰恰與其自身形式相悖。這三棟建築皆體現了工藝美術運動的風格；「形式軸」記錄了每棟建築的形貌，這正是為何「形式」與「風格」被區分開來的原因。

```
?- describe(arts_and_crafts).
```

5.2 維多利亞時代的

嚴格來說，這僅指一個時代與一個家族，大致介於 1840 年至 1910 年間，涵蓋了數種華麗且如畫般的建築風格——在加州，尤其以義式風格、斯蒂克 / 伊斯特萊克風格以及安妮女王風格為代表。

由於缺乏第五軸，它就位於運動軸上，這一點應該說得清楚些。舊金山的業界用語將「維多利亞式」視為一種建築風格，因此必須予以排除；它並非一種風格。另請注意，其年代範圍並未止於 1901 年維多利亞女王逝世之時——此類風格的房屋仍持續興建。



Figure 5: 加州房源中最常指涉的三種維多利亞風格。義式風格（Italianate）的特色是平坦的立面和支撐托架；棍式風格（Stick）與伊斯特萊克風格（Eastlake）則在牆面上鑲有裝飾性木板；而安妮女王風格（Queen Anne）則屬不規則的風格，帶有小塔樓和環繞式門廊。這個家族正處於風格演變的樞紐，因為房地產業界常將「維多利亞式」視為一種風格；但它並非單一風格。

5.3 Bay Tradition

一項歷經三代傳承的 地域傳統：未上漆的紅木或雪松、依循地塊特質而非風格手冊的隨性設計，以及相較於進口建材，更傾向採用當地材料的偏好。

有別於源自「國際風格」的「中世紀現代主義」，此風格流派具有地域特色且以材料為導向，通常是建築師的獨一無二之作。

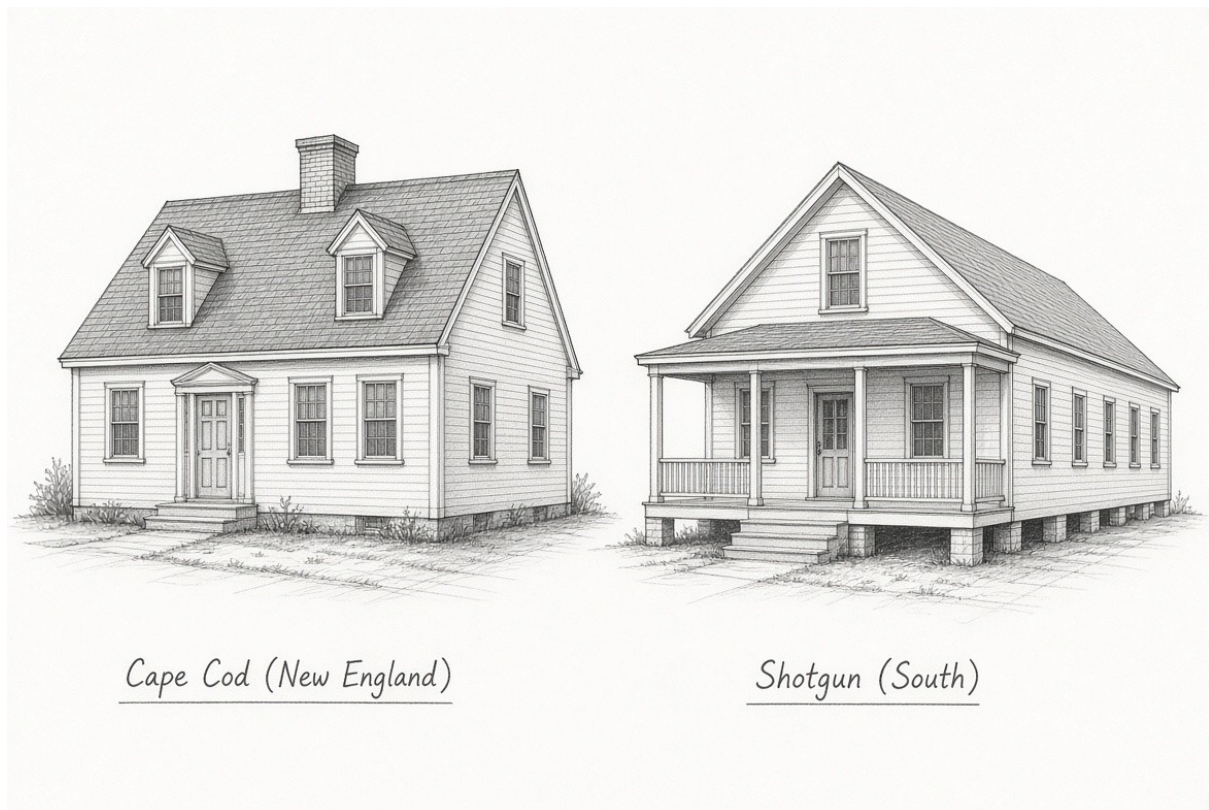


Figure 6: 從加州以外的視角來看，何謂區域傳統。新英格蘭的「科德角風格」與南方的「長槍屋」，皆是當地建材、氣候及建築習俗的產物，而非源自某本風格手冊——而「海灣傳統」正是以此為定義。這兩種風格皆未納入此本體論範疇：該範疇涵蓋的正是加州房源資訊中常見的建築風格。

6 樣式

6.1 「藝術與工藝」系列

工匠風格 — 1900–1930 年，在加州非常常見

美式風格源於此運動，而在加州最常見的表現形式則是工匠風格平房。強調可見的工藝而非裝飾性元素。

- 外露木結構——屋架、托架、橫樑、紮實的門廊柱子
- 寬闊且坡度平緩或適中的屋頂，配有深挑簷
- 由粗壯的錐形或方形柱子支撐的醒目門廊
- 上層窗扇為多格玻璃窗，通常位於簡約的下層窗扇之上
- 內嵌式櫥櫃、長凳、書櫃及壁龕式壁爐
- 天然建材——木瓦或木板外牆、河石、燒結磚

本本體論部分中唯一的一項包含關係：將某個實體命名為「工匠」（Craftsman）時，也會同時設定其為「工藝與藝術」（movement_arts_and_crafts）。每個「工匠」都是「工藝與藝術」。

草原 —— 1900–1920 年，在加州較為罕見

源自萊特（Wright）的風格，與工匠風格（Craftsman）同期，且在許多細節處理上與之相似——這正是為何「細節軸」無法推斷出任何風格的原因。

- 強烈強調水平線條；建築體量寬於高



Figure 7: 工匠風格的極致展現：格林兄弟（Greene and Greene）設計的帕薩迪納甘布爾宅邸（Gamble House）。外露橡木上延伸的深屋簷、木瓦外牆，以及開放式的臥室陽台。照片來源：卡羅·M·海史密斯檔案館，美國國會圖書館，版畫與照片部（LC 編號 2013631616）。

- 坡度平緩的四坡屋頂，配有寬闊的外伸屋簷
- 成排的窗戶，常鑲嵌藝術玻璃
- 龐大的中央煙囪

「草原派」並非「工藝美術運動」的產物。草原學派是與該運動並行發展，並受到其影響。關於草原派是否屬於該運動，至今仍有爭議（賴特是芝加哥工藝美術協會的創始成員）；本《本體論》將其記錄為「影響」，以免由此衍生任何推論。若將其歸類，便會使每棟草原風格住宅都被視為工藝美術運動的產物，而歷史對此尚未有定論：

```
?- influenced_by(prairie, arts_and_crafts).  
true.  
  
?- expresses(prairie, arts_and_crafts).  
false.
```

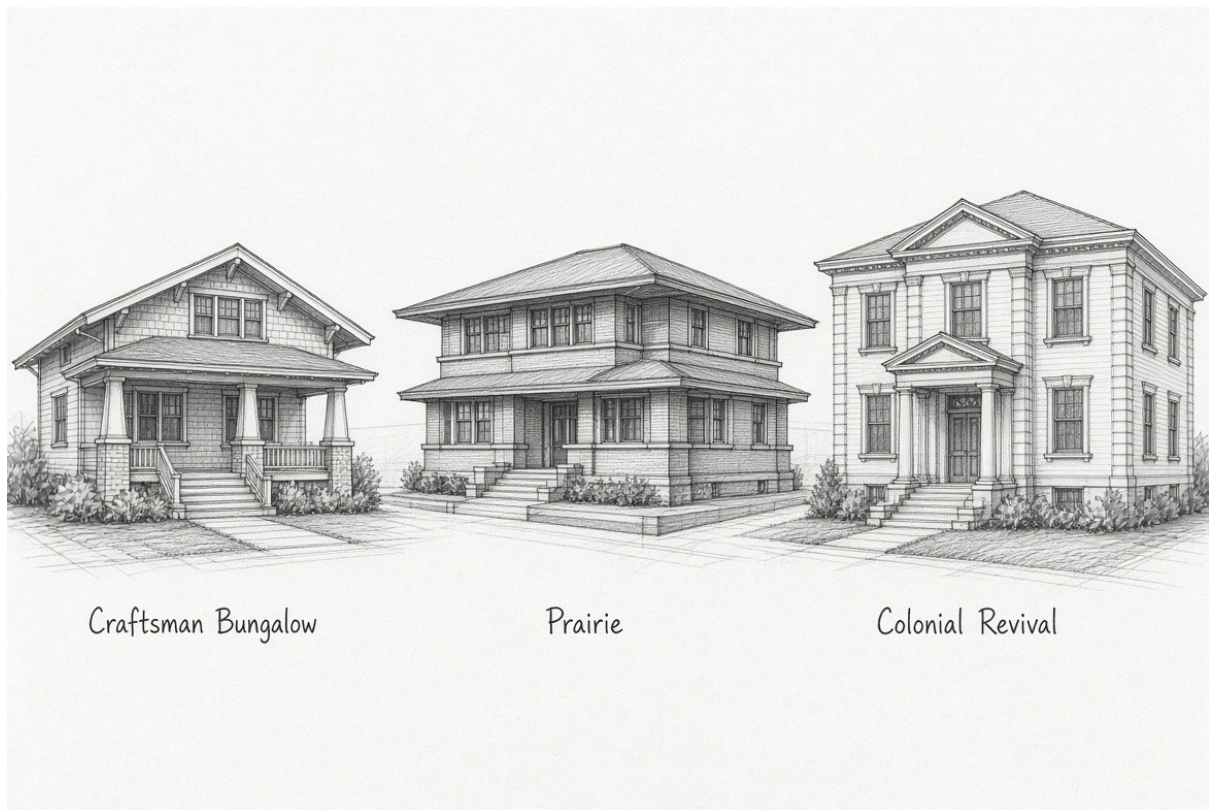


Figure 8: 三種具有相似建築格局的詮釋。「工匠風格」平房與「大草原風格」住宅皆採用「工藝美術運動」的設計語彙——深挑檐與水平線條的強調——但唯有「工匠風格」真正體現了該運動；而「大草原風格」則被記載為受其影響。殖民復興風格（後文將於「時期復興」章節中探討）則形成鮮明對比：對稱、古典細節與莊重的入口，其建築形式在房產刊登文案中常被以相同詞彙描述。

6.2 灣區區域線

三代風格——第一灣（First Bay）、第二灣（Second Bay）與海牧場（Sea Ranch）——橫跨約七十年，過去曾被歸為同一類別。這三者皆奠定了「第一灣風格」（movement_bay_tradition）。首先探討的「木瓦風格」（Shingle Style），雖與該風格脈絡相關，但並非其奠基者。

木瓦風格 — 1880–1910

一層連續的木瓦外皮覆蓋於不規則的體量之上，使細節服從於表面。牆面與屋頂皆鋪設一整片無縫接合的木瓦，不規則、非對稱的體量，極簡的裝飾線條，開口直接鑿入表面。

與北加州的「第一灣區傳統」密切相關，且被歸類為與其「並列」（related），而非隸屬於該傳統：此一傳統雖汲取了該風格的元素，但「木瓦風格」的住宅並不因此就屬於「灣區傳統」的作品。

現有房源的呈現比房源描述更為貼切。這種建築風格在舊金山灣區的舊社區中隨處可見，但房仲很少直接點明其名稱——這類房屋通常被描述為「工藝風格」、「愛德華風格」，或僅以其屋頂瓦片類型來稱呼。因此，「style_shingle」欄位中的低計數，更多反映的是房源描述的用詞，而非實際建築的樣貌。



Figure 9: 木瓦風格：外牆覆層無縫銜接於牆面、屋頂及天窗之上，建築體量呈現不規則而非規整的形態。裝飾線條盡量精簡，開口直接鑿於表面。

第一灣傳統 — 約 1890 年至 1920 年

伯納德·梅貝克 (Bernard Maybeck)、厄內斯特·考克斯黑德 (Ernest Coxhead)、威利斯·波克 (Willis Polk)，以及部分茱莉亞·摩根 (Julia Morgan) 的作品。與「工藝美術運動」及「木瓦風格」密切相關；將本土建築風格融入景觀之中。伯克利及奧克蘭山區。

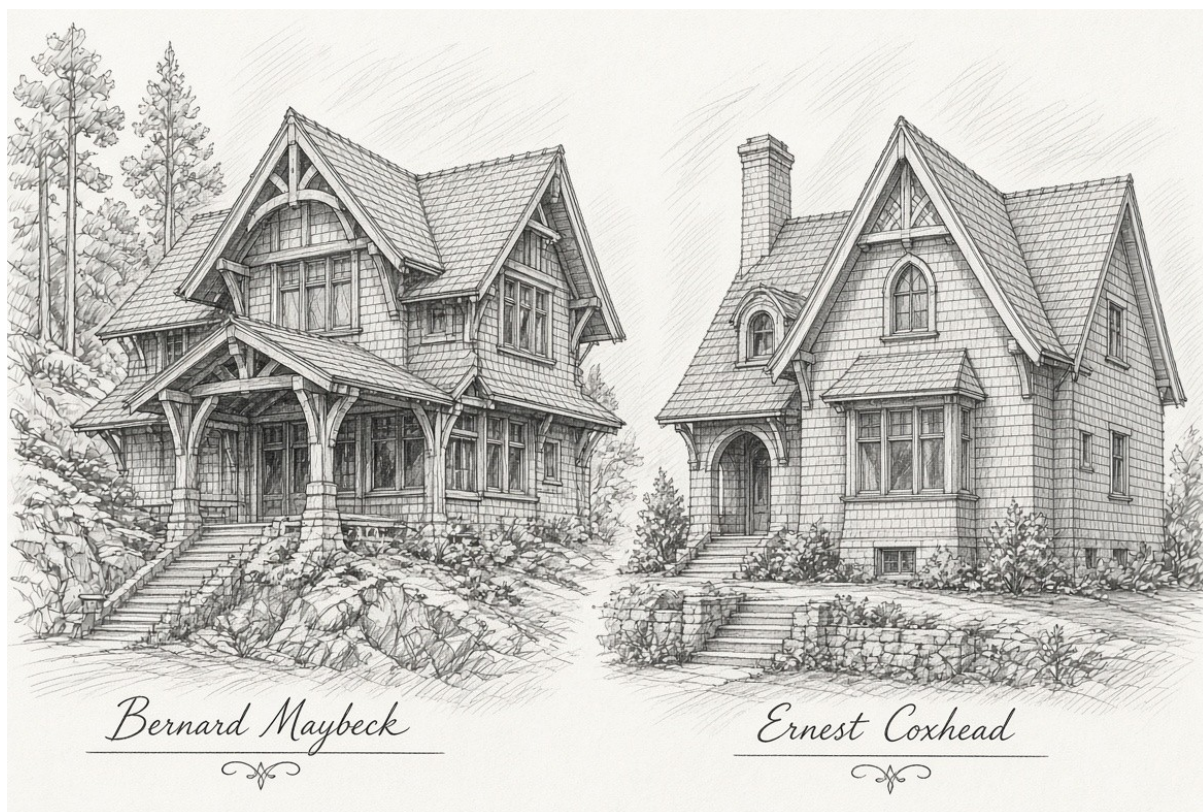


Figure 10: 沿襲梅貝克（Maybeck）與考克斯海德（Coxhead）風格的「第一灣」傳統建築：未上漆的木瓦、粗獷的裸露木結構，以及順應林木覆蓋斜坡而非遵循風格手冊所規劃的平面布局。



Figure 11: 這與波爾克（Polk）和摩根（Morgan）的風格一脈相承，即在運用地方性建材時，僅適度點綴古典細節。這些草圖更體現了每位建築師的個人風格，而非特定住宅的記錄。

「*Second Bay*」傳統 —— 約 1930–1965 年

威廉·沃斯特、加德納·戴利、約瑟夫·埃舍里克。更簡約、具地域特色、以木材為核心的現代主義。所謂「灣區風格」這個簡稱，通常指的就是這一代建築師。

William Wurster

informal California
modern-farmhouse
simple wood-box volumes
low gable or shed roof
large sliding glass opening
to a terrace
unpretentious redwood
or painted wood siding
indoor-outdoor living
modest and regional

Gardner Dailey

slightly more polished
Second Bay hillside house
refined wood and stucco
generous horizontal windows
elegant but still
informal modern
good indoor-outdoor
connection



Figure 12: 第二灣區傳統風格，仿照伍斯特（Wurster）與戴利（Dailey）的作風。註解均出自製圖師之手。兩者皆採用木質線條且風格隨性，建築入口處呈現露台而非立面，其中戴利的作品在兩者中更顯精緻。

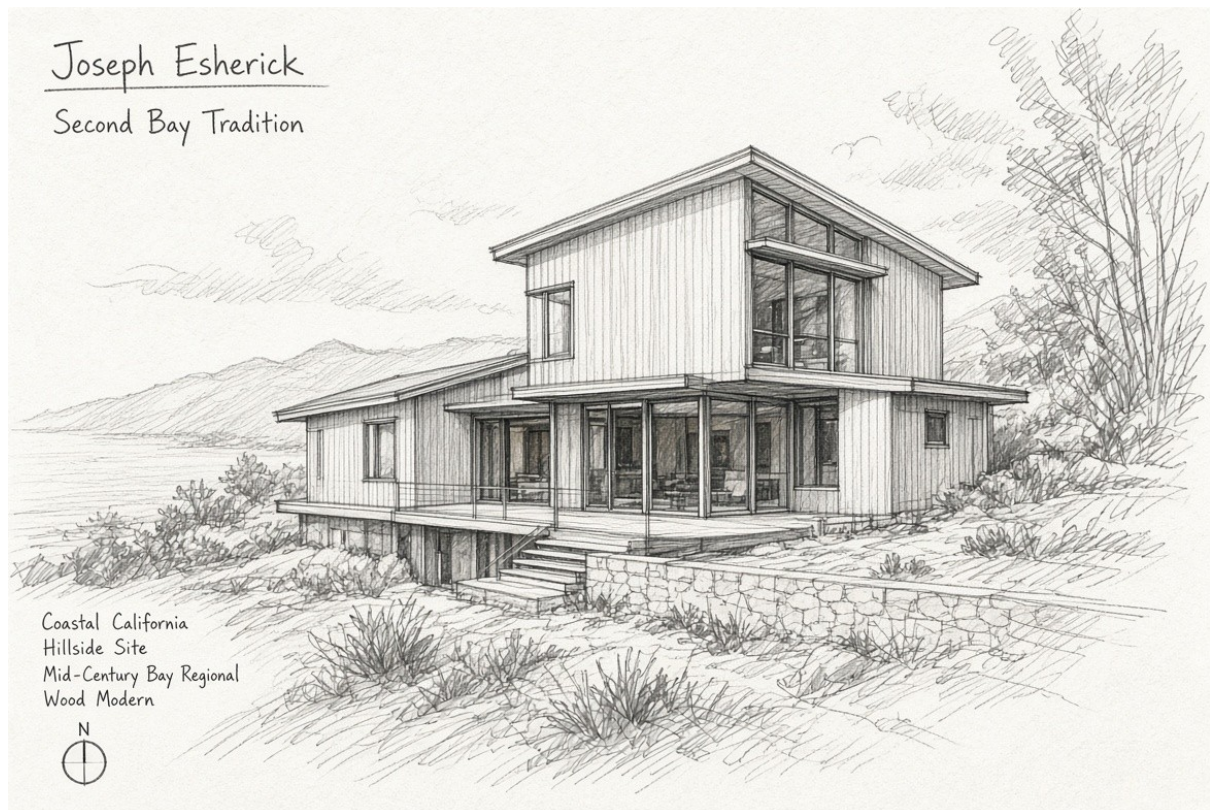


Figure 13: 埃舍里克 (Esherick)，同樣的建築傳統延伸至海岸：垂直木板、單坡屋頂，以及被深挑簷遮蔽的玻璃窗。這條建築脈絡從此處延伸至海牧場 (Sea Ranch)。

海牧場 (*Sea Ranch*) ——約 1963 年起

埃舍里克 (Esherick) 與 MLTW —— 摩爾 (Moore)、林登 (Lyndon)、特恩布爾 (Turnbull)、惠特克 (Whitaker) —— 結合哈爾普林 (Halprin) 的景觀規劃。承襲了地域主義，但並非與「第二傳統」同義。採用單坡屋頂、未上漆的垂直壁板，無屋簷或裝飾線條。

Joseph Esherick — Sea Ranch Hedgerow

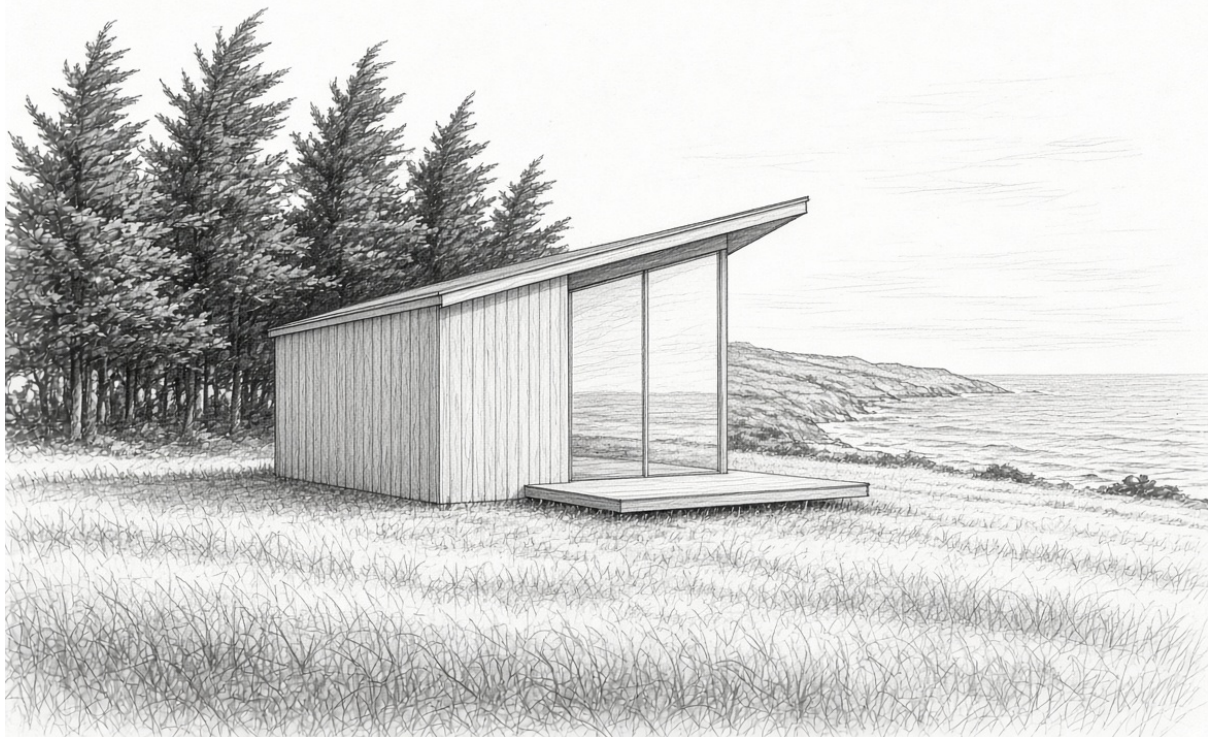


Figure 14: 以埃舍里克風格打造的「海牧場」：一座由未上漆的垂直木板組成的簡樸盒狀建築，頂部覆以單坡屋頂，邊緣切平且無任何裝飾邊條，坐落於柏樹樹籬的背風處，屋頂朝向玻璃窗方向逐漸升高，而玻璃窗則面向大海。其選址本身，與建築本身同樣是設計的一部分。



Figure 15: 海牧場（Sea Ranch）的 MLTW：一棟由十戶住宅組成的建築，沿著懸崖階梯式排列，屋頂呈棚屋式，坡度朝向背風方向傾斜。未上漆的垂直木板，邊緣切得平整，沒有屋簷或裝飾線條，窗戶則直接開鑿於牆面。其位置由哈爾普林（Halprin）的景觀規劃所決定。

6.3 維多利亞時代的家庭

三種子類型，全都將‘movement_victorian’設為真，此外還有一個時期則刻意不設為真。

安妮女王風格 — 1880–1910

最為人熟知的亞類型，而在舊金山，若未加限定，「維多利亞式」一詞通常指的就是這種。

不對稱的立面與複雜的屋頂線條·轉角塔樓·環繞式門廊配有車削柱·山牆兩端採用花紋屋瓦·欄杆雕花。

義式風格 — 1855–1890

在舊金山非常常見，特別是米慎區（Mission）和西擴區（Western Addition）那些正面平整、帶有傾斜凸窗的連排屋。

帶有托架的檐口，通常較深·高而窄的窗戶，多為圓拱形·護牆後方為平頂或坡度極淺的屋頂·傾斜或方正的凸窗。

斯蒂克 / 伊斯特萊克 — 1870–1895

採用垂直與斜向的木板，用以凸顯——或裝飾——下方的框架。這種風格介於義式風格與安妮女王風格之間，且常與這兩者混合運用。



Figure 16: 安妮女王風格：位於尤里卡的卡森大宅，建於 1884 至 1886 年間，為木材大亨威廉·卡森所建。其一側立面可見塔樓、複雜的屋頂線條、帶圖案的木瓦以及柱頭雕花裝飾。照片來源：卡蘿·M·海史密斯檔案館，美國國會圖書館，版畫與照片部（LC 編號 2011632002）。

愛德華時代 — 1901–1920，無父母

舊金山灣區用以指稱二十世紀初住宅建築的房地產與古蹟保存術語，尤指舊金山地區。這並非維多利亞風格的亞類型：它屬於隨後的時代，而在舊金山，此術語實際上指的是 1906 年大火後重建的建築。

這主要是一種時期劃分，而非一種獨立的正式風格——通常比維多利亞晚期作品更為樸實，常融入古典復興、工匠風格或過渡風格的細節。分類者不應將其視為具有一套固定的特徵，這正是它沒有「父類」且典型細節極少的原因。



Figure 17: 「愛德華時代」一詞在舊金山灣區的使用：指的是一個時期，而非一種風格。此處的細節屬於古典復興風格，但同一術語也涵蓋了同時期較為樸素且受工藝美術運動影響的作品，這正是為何該本體論未為其設定父類，且僅列出少量典型細節。

6.4 復古風格

這是最常被貼上錯誤標籤的群體，而這些標籤也最值得我們正確理解。

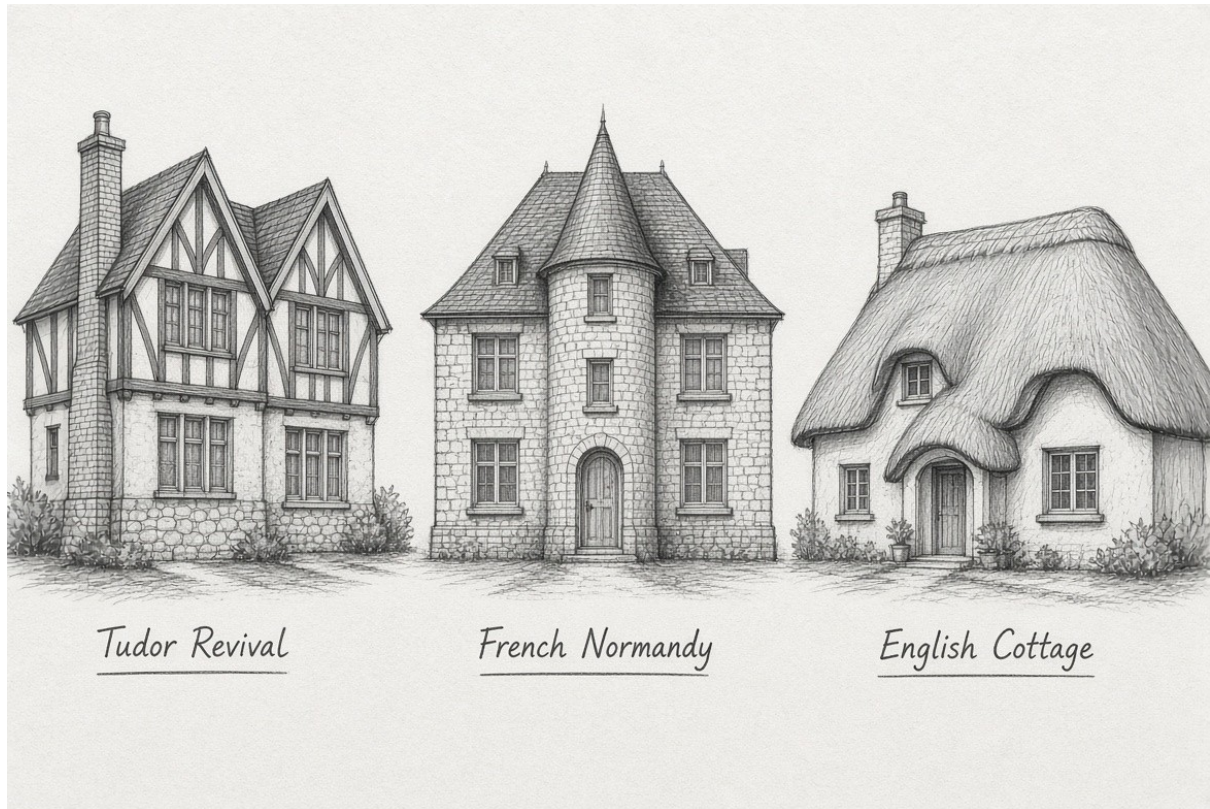


Figure 18: 該房源描述將三種「復古風格」歸納為「都鐸風格」，並透過屋頂形態來區分各風格：帶有半木結構的陡峭山牆屋頂屬於都鐸復興風格；帶有圓形入口塔樓的陡峭四坡屋頂屬於法式諾曼第風格；而沒有木結構、屋頂低垂覆蓋入口的則屬於英式鄉村小屋風格。

都鐸復興風格 — 1910–1940

坡度陡峭的正面山牆·半木結構，內填灰泥或磚塊·成組的高而窄的平開窗·龐大的煙囪。

在加州房產刊登文案中，這一詞常被過度套用於任何屋頂陡峭的「復古風格」住宅。它通常取代的兩種說法是：

英式鄉村小屋 — 1920–1940

小巧、不對稱、如畫般優美。其顯著的缺失在於缺乏半木結構；其顯著的特徵則是那座低矮的斜坡屋頂，在入口處低垂延伸，有時甚至低至頭部高度。入口處設有拱形木板門。

法國諾曼第——1920–1940

坡度陡峭的四坡屋頂——這是與都鐸式風格最鮮明的區別；圓形或多邊形的入口塔樓，通常內設樓梯；建材為磚、石或灰泥。

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?- setof(X, confusable(tudor, X), Xs).
Xs = [english_cottage, french_normandy].
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故事書 — 1920–1940

刻意營造的奇幻風格：誇張的屋頂線條、仿茅草屋頂、小塔樓，以及歪斜的細節。這確實是舊金山灣區與南加州的典型風格——但這個詞也只是籠統的行銷文案，「童話般的魅力」並未傳達任何具體含義。

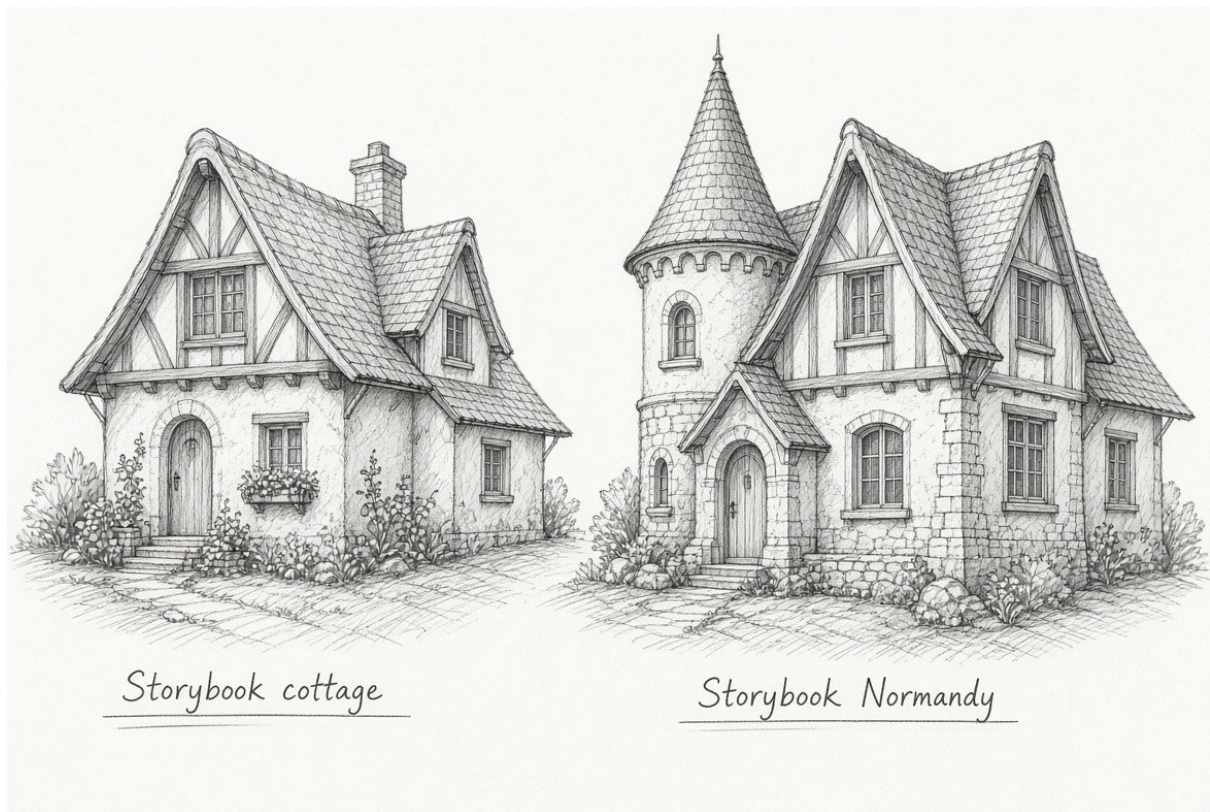


Figure 19: 「童話書風格」體現於居家尺度之中，這也是為何該標籤會與另外兩個標籤重疊的原因。左側的小屋是英式鄉村小屋，其奇思妙想被刻意放大；右側的小屋則借鑒了法國諾曼第風格的塔樓。使這兩者皆具「童話書風格」特質的關鍵，在於刻意營造的戲劇性，而非其設計元素的來源。

Storybook (elaborate)



Figure 20: 這個成語被詮釋到了極致：波浪狀的人造茅草屋頂、一座小塔樓、一座完全不成比例的煙囪，而且這些元素完全沒有任何結構上的實用性。像這樣的房子十分罕見，通常都是地標；但將這個詞用於行銷則不然。

殖民復興風格 — 1890–1955

對稱的立面，入口位於中央，古典風格的入口門框，均衡的雙懸窗扇。請勿與「西班牙殖民復興風格」混淆，兩者僅名稱相同——請參閱第 12 節。

荷蘭殖民風格 — 1895–1940

在這個本體論中，僅由「荷蘭殖民風格」所獨有的雙坡屋頂，與源自喬治亞風格的對稱屋頂形式幾乎沒有共同之處，因此被歸為獨立類別。全寬單坡屋頂天窗。

新古典主義 — 1895–1950

重現古典建築語彙，而非在住宅規模上直接援引：設有柱列與山花的全高門廊，呈現嚴格的對稱性。



Figure 21: 童話般的建築：斯帕德納宅邸 (Spadena House)，又稱「女巫之家」，位於比佛利山莊。那誇張且下垂的屋頂線條，正是此建築風格的標誌性特徵。照片來源：卡蘿·M·海史密斯檔案館，美國國會圖書館，版畫與照片部 (LC 編號 2013632128)。

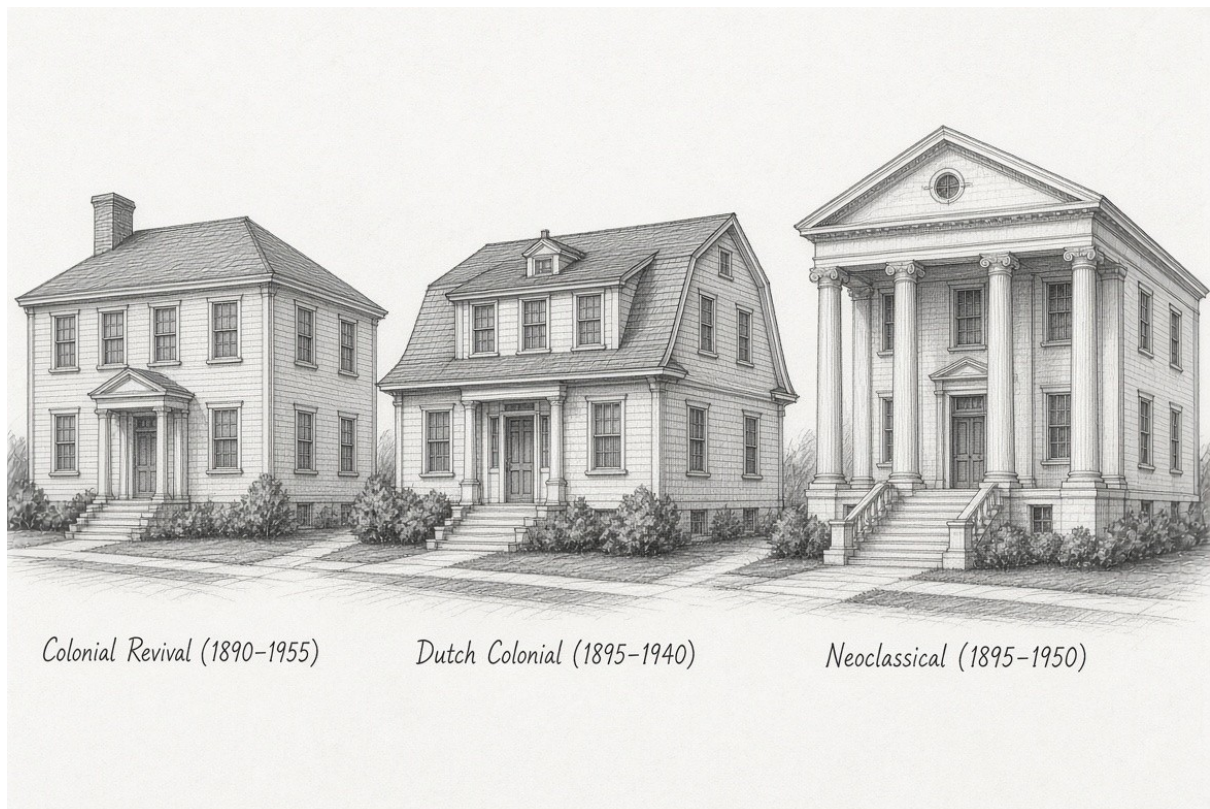


Figure 22: 源自古典風格的三種建築類型，以及區分它們的特徵。這三者皆具備對稱結構與推拉窗；雙坡屋頂是荷蘭殖民風格的標誌，在本分類體系中僅此一類具備此特徵；而門廊的規模則決定了新古典主義的風格。殖民復興風格在住宅尺度上借鑒了這些元素，新古典主義則對其進行了再現。

6.5 源自西班牙的團體「

」

四位手足，刻意不設「傘狀」的母體：他們之間的界線確實存在爭議，而「發明」一個家庭，將會確立一種該領域不認同的分類體系。「托斯卡納」(Tuscan)作為最後提及的，是與他們並列記載的後期地段術語，而非第五位手足。按時間順序來理解，是最清晰的切入點。

傳教復興風格 — 約 1890 年—1915 年

該組中的 第一種，其詞彙直接源自加利福尼亞的傳教站。比後來的風格更樸實、更早期的。

曲線形狀的護牆——鐘樓山牆·帶拱廊的門廊或走道·光滑的灰泥外牆，具有大片無裝飾的表面·四葉形窗戶。

西班牙殖民復興風格 — 約 1915 年至 1940 年，極為常見

後來那種更廣泛、也遠比「傳教士復興」風格更為精緻的建築語彙，其靈感來源不僅限於傳教站，更汲取了西班牙與拉丁美洲的元素。

白色或米色的灰泥外牆·坡度平緩、屋簷外伸較短的紅黏土瓦屋頂·拱形開口·鍛鐵柵欄與小陽台·不對稱的體量配置，通常圍繞著一個庭院。



Figure 23: 該流派中的前兩種風格，以及區分清單中最常被忽略的描述。傳教士復興風格 (Mission Revival) 簡樸樸實，其造型矮牆與未經裝飾的灰泥外牆皆源自傳教站建築本身。西班牙殖民復興風格則是較晚出現且遠為精緻的建築語彙，已取代前者：雕花窗框、鍛鐵飾件，以及非對稱的體量配置。



Figure 24: 西班牙殖民復興風格：蒙特西托的卡薩·德爾·埃雷羅（Casa del Herrero），由喬治·華盛頓·史密斯設計。白色灰泥外牆，低坡度陶瓦屋頂，屋簷外伸幅度較小，設有鍛鐵小陽台及庭院。照片來源：卡羅·M·海史密斯檔案庫，美國國會圖書館，版畫與照片部（LC 編號 2013634667）。

地中海復興風格 — 約 1915–1940 年

風格更為廣泛且兼收並蓄，通常規模較大，融合了義大利與文藝復興時期的元素及西班牙元素。其與西班牙殖民風格的界線存在爭議且界線模糊——本文亦無意否認這一點。

蒙特雷 —— 1830 年代至 1940 年代

這是一種獨具加州特色的建築風格，且有兩處建築共享此名。歷史悠久的「*Monterey Colonial*」（1830 年代至 1840 年代）融合了西班牙 / 墨西哥土坯建築技法，並融入英美及新英格蘭風格元素—蒙特雷的「拉金宅邸」（Larkin House）即為其原型。「拉金式建築」（*Monterey Revival*，1920 年代至 1940 年代）則是後期的復興風格，主要由投機建商興建。

一個識別碼即可同時適用於兩者，因為 MLS 資訊幾乎從不區分這兩者，而且在加州，若房源資訊標註為「蒙特雷」，幾乎在所有情況下都指的是「復興風格」。

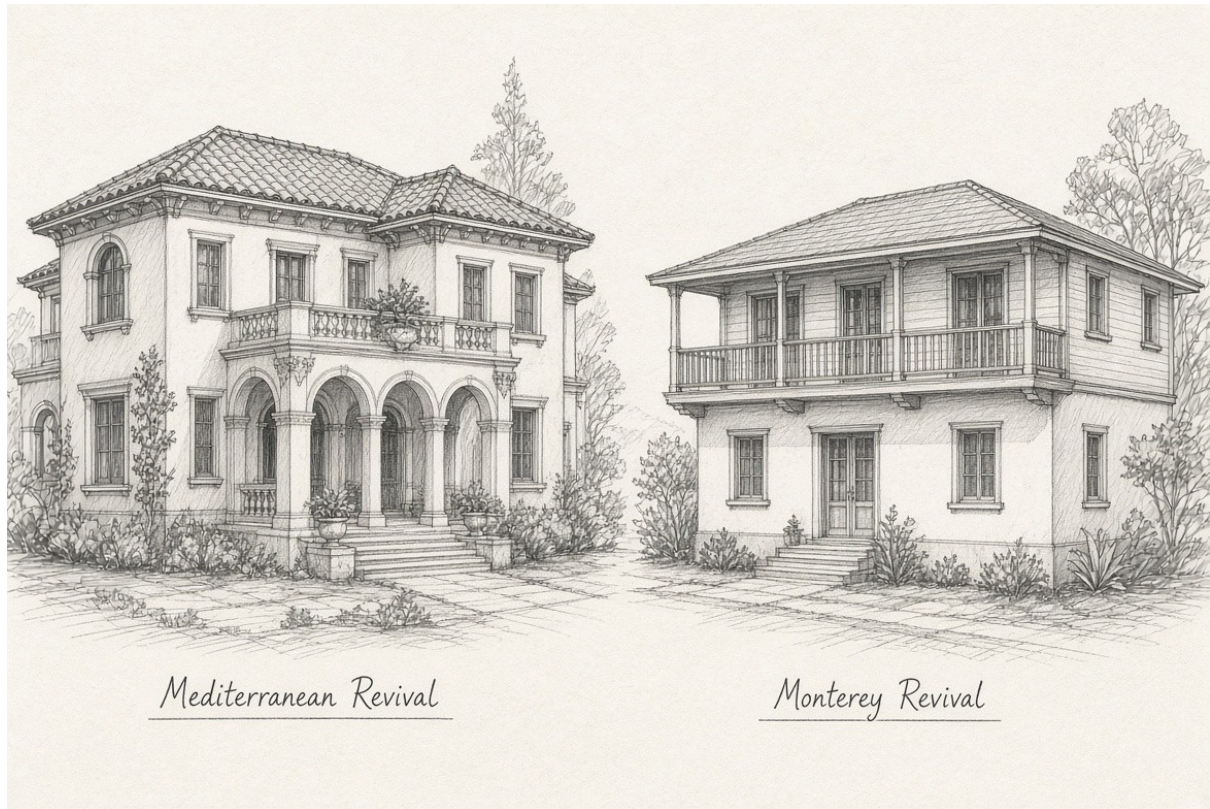


Figure 25: 該流派中的最後兩種風格。「地中海復興風格」規模較大且更為正式，其設計靈感不僅源自西班牙，也大量汲取了義大利與文藝復興時期的元素：例如帶拱廊的露台、欄杆以及對稱設計。蒙特雷復興風格則以一項特徵為標誌，即在整體上屬英美風格的建築上，設有一座橫跨立面全寬的二樓懸臂式陽台。

托斯卡納 — 約 1985 年-2010 年

加州風格建築特色。厚實質感的灰泥外牆·堆疊石材飾面·拱形入口·仿古處理·醒目的正面車庫。

之所以將其列為獨立風格，而非歸入地中海風格之下，是因為這是一個獨特的市場時期，模型可以將其與地中海風格分開進行測試；這對於估值而言，比其風格淵源更為重要。



Figure 26: 蒙特雷殖民風格：拉金宅邸 (Larkin House)，位於蒙特雷，建於 1835 至 1837 年間，即上文所述的原型建築。採用土坯砌造結構，二樓設有橫跨整面牆的陽台。照片：羅伯特·W·凱里根，1936 年 5 月 13 日。《美國歷史建築調查》，國會圖書館 (HABS CAL,27-MONT,9--2)。



Figure 27: 托斯卡納風格的元素：帶有紋理的灰泥、堆疊石材、瓦片屋頂、拱形開口以及一座塔樓。1985 年至 2010 年間的住宅區建築語彙，將這些元素應用於投機性開發的規模，並增添了醒目的正面車庫——這點在草圖中並未呈現。這種本體論記錄的是時代特徵而非歷史淵源，因為模型所能驗證的正是該時代的特徵。

6.6 現代系列

裝飾藝術風格 — 1925-1940

垂直強調・階梯式或後退式體量配置・鋸齒狀與人字形裝飾。

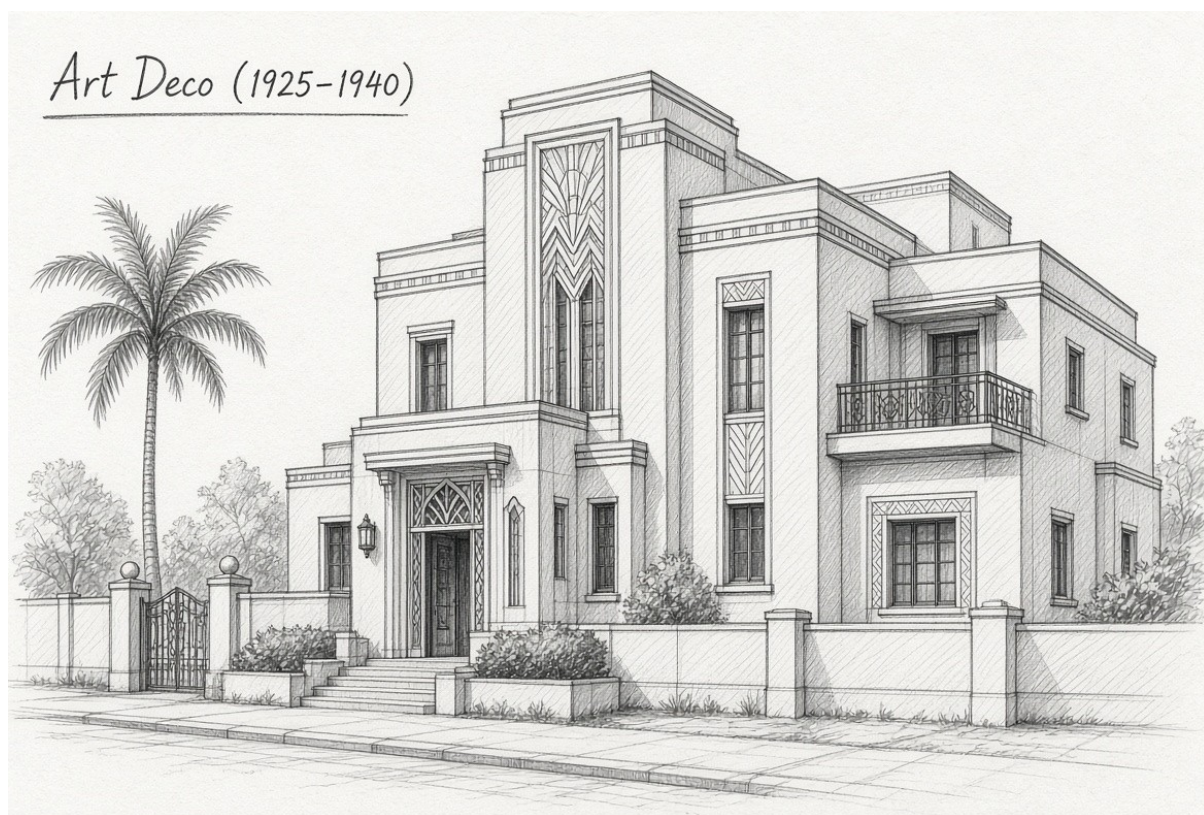


Figure 28: 裝飾藝術風格：建築體量向上延伸，裝飾紋樣則沿垂直方向展開。此處的每個裝飾元素——無論是門楣上的飾條、人字紋，還是放射狀紋樣——都引導視線向上延伸至建築頂端。

流線型現代主義 — 1930-1945

裝飾藝術風格的水平延續，汲取了遠洋客輪的設計元素。圓潤的角落・水平流線型・玻璃磚、舷窗、管狀欄杆・平頂、光滑的粉彩色灰泥。

這兩種風格常被混為一談，但外觀卻截然不同：裝飾藝術風格（Deco）以垂直線條和裝飾性為特徵，而現代主義（Moderne）則以水平線條和流暢感為特徵。



Figure 29: 流線現代主義 (Streamline Moderne)，作為水平風格的繼承者：建築轉角呈圓角，飾帶環繞整棟建築，而舷窗與玻璃磚則明確展現了其從航海風格汲取的靈感。

國際風格 — 1930-1960

透過紐特拉 (Neutra) 與辛德勒 (Schindler) 傳入加利福尼亞的歐洲現代主義。平屋頂、無屋簷、無裝飾、光滑連貫的白色牆面、帶狀窗戶與懸臂結構。

刻意不具地域定位——這點使其有別於「海灣傳統」——那種以地域主義為導向、以木材為主的風格，也與「中世紀風格」——其較晚期且更偏向居家生活的美國發展形態——有所區別。

International Style (1930-1960)

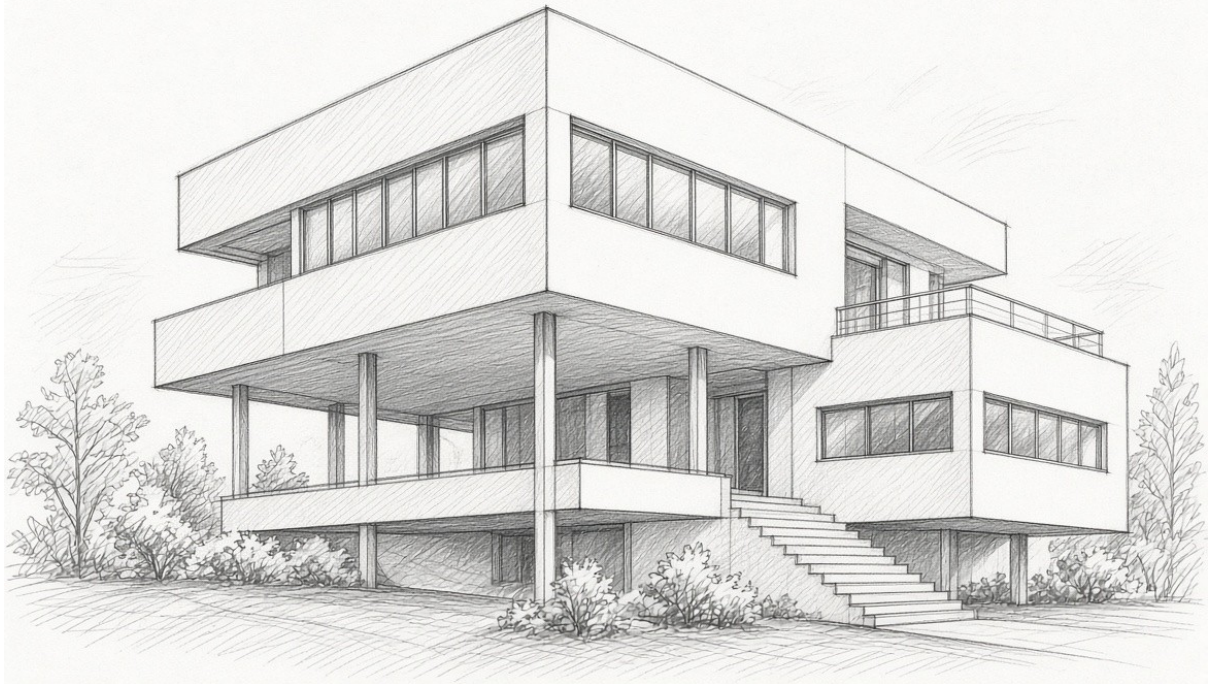


Figure 30: 國際風格傳入加州後的樣貌：平頂無屋簷、一整片無縫的白色平面、帶狀窗戶，以及由柱子支撐的上層樓板。其設計完全未呼應所在場域，這正是其精髓所在。

中世紀現代主義 — 1945-1975，極為常見

開放式格局・低矮的水平體量・大型玻璃幕牆（通常為落地式）・高側窗・保留外露的柱樑結構・平頂或低坡度屋頂並帶有寬闊的挑簷。

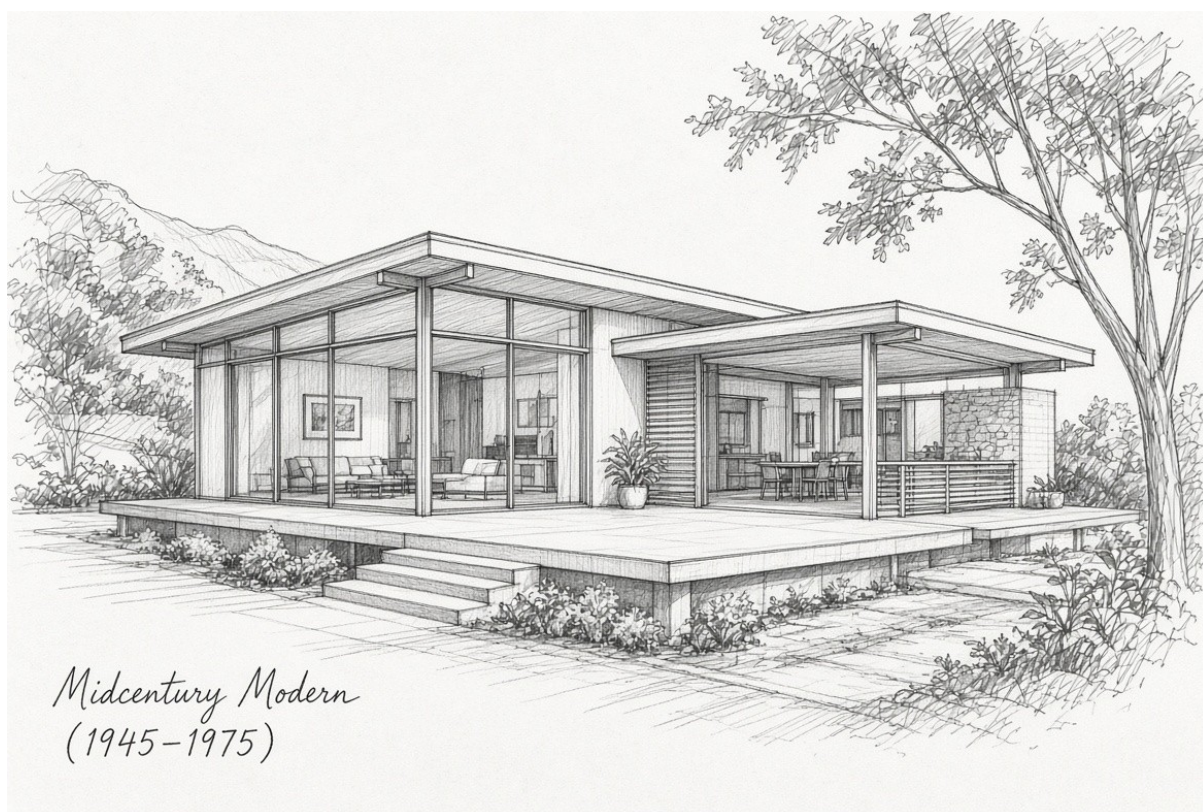


Figure 31: 中世紀現代風格：柱樑結構、落地玻璃窗，以及延伸至同層露台的起居空間。屋頂並非置於頂部的龐大體量，而是由支撐結構托起的薄平面。

Eichler — 1949-1974

約瑟夫·艾克勒（Joseph Eichler）的「地塊現代主義」。嚴格來說，這是一種建築工法而非建築風格，但業界仍將其作為風格分類使用，並使帕洛奧圖、桑尼維爾、聖拉斐爾和沃爾納特克里克的艾克勒住宅價格更高——這已足以成為其在估價本體論中擁有獨立識別碼的理由，無論建築史學家會如何評論。

柱梁結構，梁體外露，面向後方私人後院的落地玻璃窗，前方為素面街道立面，中庭入口，輻射供暖樓板。

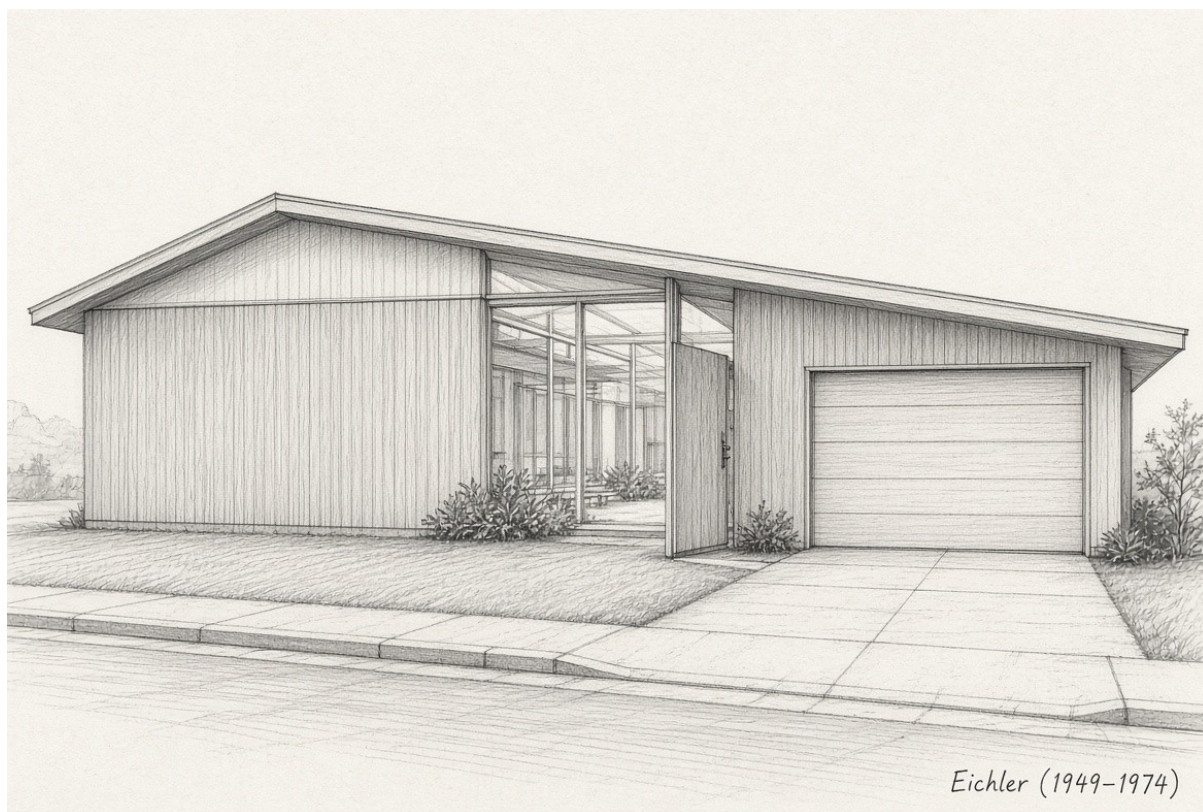


Figure 32: 從街道上望見的一棟艾克勒（Eichler）住宅：垂直木板構成的素面外牆、車庫與大門。所有玻璃窗皆向內開，僅能透過開口窺見內部，這也是為何從平面圖與立面圖中皆能辨識出其建築類型。

棚屋風格 — 1960–1985

數座以不規則角度交會的單坡屋頂・垂直木質壁板・極簡裝飾・刻意呼應場地特質。海牧場（Sea Ranch）是其最傑出的體現，而非其同義詞。



Figure 33: 作為成片住宅的「中世紀現代主義」：由亞歷山大建築公司（Alexander Construction Company）在棕櫚泉建造的一棟住宅。低矮的水平體量、由外露梁樑支撐、延伸至牆體之外的淺折疊屋頂、屏風牆上方的高側窗玻璃、入口處的通風磚板，以及車棚而非車庫；成片住宅的現代主義並非僅有艾克勒（Eichler）的風格。照片來源：卡羅·M·海史密斯檔案館，美國國會圖書館，版畫與照片部（LC 編號 2010630222）。

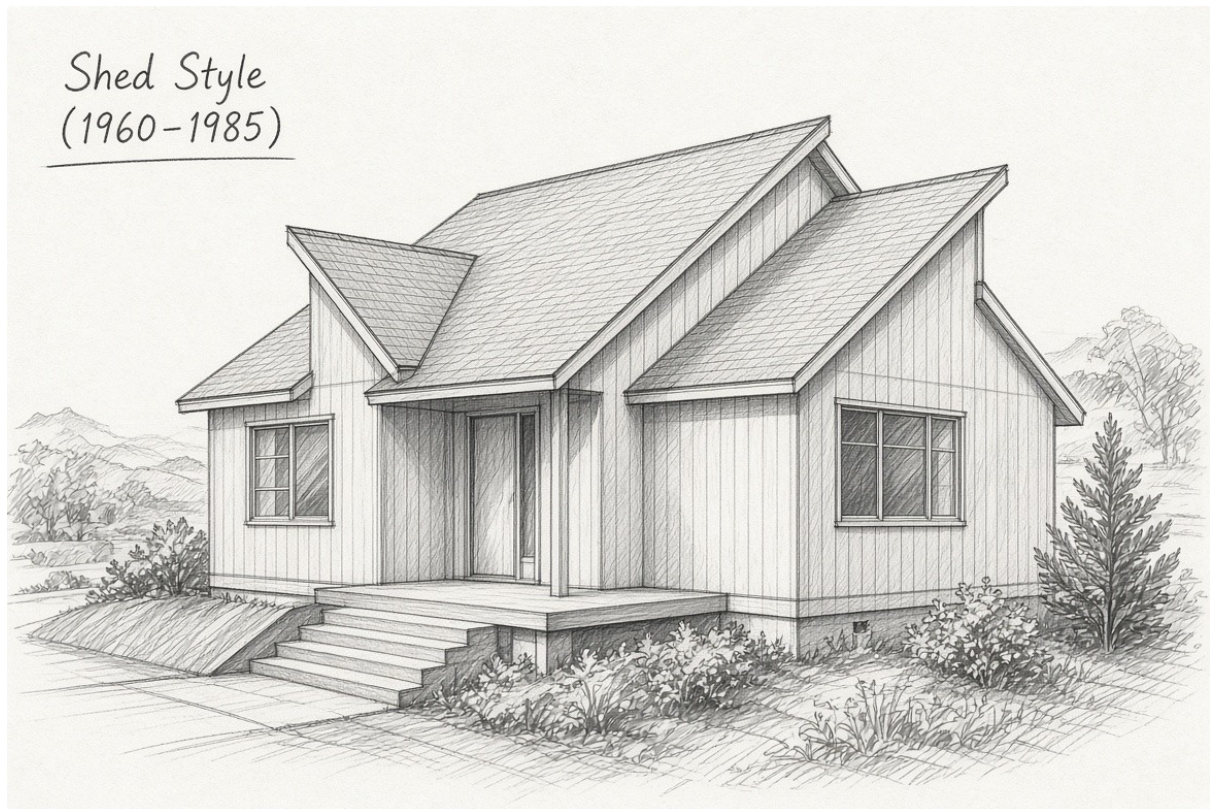


Figure 34: 棚屋風格：單坡屋頂以不同角度相互交錯，覆蓋於垂直木板之上，挑簷較淺，細節處理簡樸。整體構圖即為裝飾；未添加任何裝飾元素。

6.7 戰後本土建築及其後續發展

極簡傳統風格 — 1935–1950 年，非常常見

這類建築出現在大蕭條後期、戰爭期間及戰後初期，體積緊湊且幾乎沒有裝飾——它是戰後大量興建的「牧場式住宅」的直接前身，在加州極為常見。由於缺乏華麗感，此風格在大多數風格列表中顯然被忽略了。

體積緊湊，通常為單層建築，屋頂坡度較低或中等，屋簷緊貼牆面，僅有一個朝前的殘存山牆作為唯一裝飾元素。

限制。這是個房產描述術語。仲介通常會寫「入門級住宅」或「1940 年代小屋」，因此此標記極少會因房源描述文字而觸發，而最好是從結構化資料中推導出來——例如建造年份、小面積、單層建築。

牧場 — 1935–1975，極為常見

既是風格，也是形式，而這兩者之所以分別記錄，是因為它們是分開的：

	— 牧場風格	來自「—」牧場
1953 年建成的農場	✓	✓
2020 年當代牧場式建築設計		✓
受牧場風格影響的錯層式住宅	✓	

狹長、低矮、緊貼地面的建築，低坡度屋頂配以寬闊屋簷，附設面向街道的車庫，落地窗，室內外空間規劃延伸至後方露台。

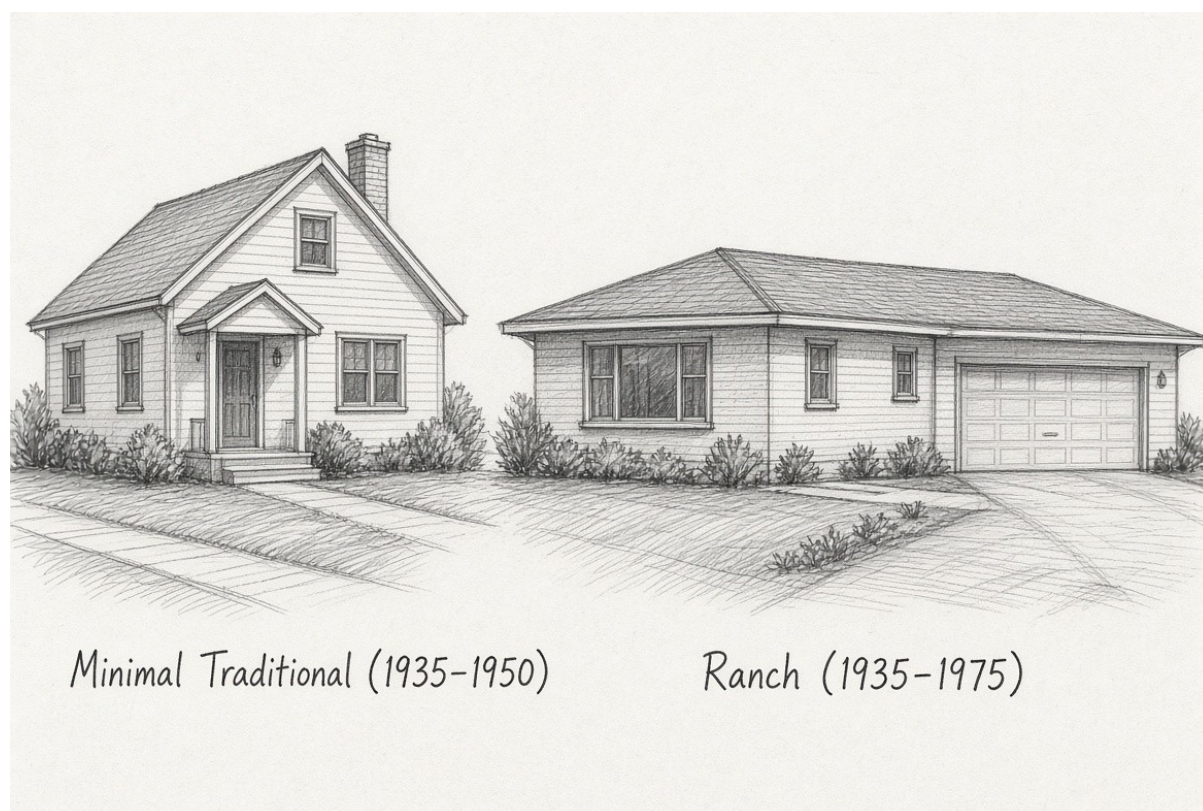


Figure 35: 這兩種風格是加州住宅中最常見的類型，也是在較老舊的郊區中最常被混淆的兩種。極簡傳統風格的建築體積緊湊，屋簷緊貼屋身，並帶有象徵性的山牆；而牧場風格的建築則長而寬，屋簷寬闊，且以附屬車庫為中心進行規劃。

現代農舍風格 — 2010 年起

一種純正的當代風格語彙，與其借鑒來源的鄉村鄉土形式截然不同。板條外牆，通常為白色或極深色，立縫式金屬屋頂，黑色窗框，寬大簡約的山牆。

一棟建於 1900 年的農舍，僅有形體卻無風格；而 2021 年新建的房屋，通常具備風格，卻從未作為農舍使用過。

新折衷主義 — 1980 年起，十分常見

這類郊區建築融合了歷史元素，卻未偏重其中任何一種：單一立面上呈現多種復興風格的片段、混合式外牆飾面，以及醒目的突出車庫。這遠比將所有建於 1980 年之後的建築統稱為「當代風格」要好得多。

限制。經紀人從不使用這個詞，因此它實際上只會出現在交易或估價文件中。



Figure 36: 這兩種新興風格，以及區分它們的對比特徵。「現代農舍風」堅持採用一種克制的設計語彙：板條牆、金屬屋頂、簡約的山牆。「新折衷主義」則同時借鑒多種元素，卻不拘泥於任何一種，這是一種定義，而非批評。

當代 — 1960 年起，非常常見

設計應著重體現 建築竣工當時流行的建築語彙，而非拘泥於歷史復興風格。

這個術語的定義在建造當下即已確立：意指 當時的風格。一棟建於 1975 年的加州住宅，正確地應被歸類為「當代風格」，且不會因歲月流逝而失去此屬性。一棟「當代風格」的住宅也可能借鑒歷史元素，因此「不採用歷史語彙」這種解讀未免過於嚴苛。

7 表單

五個，而且其中沒有一個暗示某種風格。

form	定義
bungalow	低矮、緊湊，為一層或一層半，通常設有醒目的前廊
foursquare	方正的兩層立方體建築，低矮的四坡屋頂中央設有天窗，全寬門廊，每層設有四間房間
ranch	狹長、低矮、單層建築
farmhouse	鄉村傳統建築形式——簡約的雙坡屋頂結構，通常附有門廊，並有後來的增建部分
hacienda	庭院式平面圖：單層建築，格局開闊，各房間環繞著一個開放式庭院

hacienda 是刻意放在這個軸線上的。在加州房產資訊系統（MLS）的描述中，這個詞幾乎代表任何帶有模糊西班牙風格且佔地遼闊的事物，因此並未帶有任何風格上的暗示。

8 詳情請見

這四十四面旗幟的選取標準在於 區分能力，而非完整性。曾考慮過 **stucco** 和 **low-pitched roof**，但最終被排除：這些旗幟在加州幾乎隨處可見，加入後只會增加雜訊而非提供有效資訊。屋頂形狀是例外，並已列入記錄：山牆屋頂的常見程度幾乎與抹灰牆相當，但權重機制已對此加以處理，賦予其四分之一的權重；而由某種風格所獨有的雙坡屋頂，則佔有整整一分。

group	詳情請見
藝術與工藝	外露的 __ 屋架、箱型 __ 樑、寬 __ 英吋、錐形 __ 柱、深 __ 屋簷、膝部 __ 支撐桿、河石 __、石砌 __ 橋墩、分隔式 __ 燈具、藝術 __ 玻璃、護牆板、窗台 __ 座椅
維多利亞式的	轉塔、魚鱗狀 __ 屋瓦、柱頭雕花、帶托架 __ 檐口、環繞式 __ 門廊、凸窗 __、暗門 __、曼薩爾式 __ 屋頂
都鐸風格 / 童話書風格	半 __ 式支撐結構
西班牙語 / 傳教 / 蒙特雷	黏土 __ 瓦片 __ 屋頂，傳教士風格 __ 護牆、拱廊、拱形 __ 開口、鍛造 __ 鐵、庭院、二樓 __ 層 __ 陽台、土坯
現代	樑 __ 及 __、中庭、地板 __ 至 __、天花板 __、玻璃、高側窗 __、樓板、帶狀結構 __、窗戶、玻璃 __、砌塊
外牆板與屋頂形狀	木板 __ 與 __ 板條、木瓦 __ 外牆板、棚屋 __ 屋頂、山牆 __ 屋頂、四坡屋頂 __ 屋頂、雙坡屋頂 __ 屋頂、貓滑式屋頂 __ 屋頂、車棚 __ 車棚

8.1 細節是證據，而非證明

這是本本體中最重要的一條規則。任何細節都不會設定「風格標記」或「表單標記」——唯有一項例外：單詞「*gambrel*」也會設定「`style_dutch_colonial`」——因為各風格之間共享相同的詞彙：

```

?- evidence_of(bay_window, S).
S = [queen_anne, italianate, stick, edwardian].

?- evidence_of(clay_tile_roof, S).
S = [mission, spanish_colonial, mediterranean, monterey].

?- evidence_of(deep_eaves, S).
S = [craftsman, prairie].

```

若一項備註列出五項維多利亞時代的細節，卻未指明任何風格，則該備註的風格標記將設為零。這些細節是否構成某種風格，屬於主觀判斷，而本程序將此判斷權交由估價工程師 (VE) 決定——但關於如何評估觀察到的細節的章節中，已說明具體做法。

9 關聯性，以及每種關聯所授予的授權範圍

該本體記錄了六種關係，其中僅有一種允許推論。這種區別正是整個設計的安全特性。

關係	關於授權的推論？	範例
expresses	是 — 遏制	craftsman → arts_and_crafts
influenced_by	不	prairie ← arts_and_crafts
related	不	sea_ranch ↔ shed_style
typical_form	不	craftsman ~ bungalow
typical_detail	不	craftsman ~ exposed rafters
confused_with	不	english_cottage ↔ tudor

在這些例子中：→ 表示（包含於）；← 受……影響；↔ 無論哪種情況；~ 通常具有……；

共有七條「包圍」規則，每一條都將一種風格與一種動作相互對應。不存在風格與風格之間的「包圍」關係：

```

movement_arts_and_crafts    style_craftsman
                             (prairie is influence only)

movement_victorian          style_queen_anne
                             style_italianate
                             style_stick

movement_bay_tradition      style_first_bay_tradition
                             style_second_bay_tradition
                             style_sea_ranch

```

10 查詢本體

這些程式都會在載入 architectural_styles.pl 之後執行。

完整的紀錄

```

?- describe(english_cottage).
english_cottage [style]

```

```

period: 1920-1940
in California: common
Small, asymmetrical and picturesque Period Revival, frequently miscalled
Tudor. The distinguishing absence is half-timbering; the distinguishing
presence is the rolled or catslide roof sweeping low over the entry.
characteristics:
  - Steep roof sweeping low, sometimes to head height, over the entry
  - Asymmetrical, cottage-scaled massing
  - Stucco, brick or stone; little or no half-timbering
  - Arched plank entry door
typical detailing (evidence, not entailment):
  - catslide_roof
routinely confused with:
  - storybook
  - tudor

```

什麼能體現一種運動

```

?- styles_of(bay_tradition, S).
S = [first_bay_tradition, second_bay_tradition, sea_ranch].

```

某一年正在興建什麼

```

?- era(1925, S).

```

某個細節能證明什麼，以及某種風格的細節表現是什麼

```

?- evidence_of(half_timbering, S).
S = [tudor].

?- evidence_for(eichler, D).
D = [post_and_beam, atrium, floor_to_ceiling_glass, radiant_slab].

```

哪些組合會被搞混

```

?- confusable(A, B).

```

編輯完本體後請加以檢查

```

?- check.
ontology OK

```

check/0 驗證八項結構不變式——每種風格皆有其定義與時期；每個包含關係的父節點皆為「運動」，而每個子節點皆為「風格」；每個被引用的細節與形式皆確實存在；沒有任何項目同時屬於「風格」與「運動」。請於任何編輯完成後執行此程序。

11 權衡觀察到的細節

本程式中沒有任何部分會「讀取」照片。它既沒有視覺模型，也沒有特徵偵測器。下方的輸入是一份細節名稱清單，由一位實際觀察過該房屋或其照片，並決定自己所見內容的人所輸入。本體論的貢獻在於後續的演算：給定一組被觀察到的細節，該證據應如何分配給能夠解釋這些細節的各種風格。

這項劃分正是有用的部分，因為這正是估價師平時只能在腦海中進行、卻無法向任何人展示的步驟。根據從一棟房屋的多張照片中觀察到的細節：

```
?- report([exposed_rafters, tapered_columns, knee_braces, built_ins, deep_eaves]).  
  
observed: [exposed_rafters,tapered_columns,knee_braces,built_ins,deep_eaves]  
evidence divides as:  
  70.0%   craftsman  
  20.0%   prairie  
  10.0%   first_bay_tradition  
movement support:  
  arts_and_crafts      3.5000  
  bay_tradition        0.5000
```

請理解為：主要為「工匠風格」(*Craftsman*)，其餘 30% 則由「草原風格」(*Prairie*) 與「第一灣傳統」(*First Bay Tradition*) 分佔。這兩者均不屬於「工藝美術運動」(*Arts and Crafts*)：據記載，「草原風格」雖受該運動影響，「第一灣傳統」則隸屬於「灣區傳統」(*Bay Tradition*)，因此下方分類下的運動支持度統計中，僅將「工匠風格」所佔的比例計入「工藝美術運動」的份額。運動支持度以權重分計：這五項細節總計佔五分，其中「工匠風格」佔 3.5 分，相當於其 70%。

11.1 權重計算方式

特異性是計算出來的，而非宣告的。某種風格所主張的某個細節具有區分性；若六種風格都主張同一個細節，其區分性便微乎其微。其權重是主張該細節的風格數量的倒數，且會自動從 $\text{typical_detail}/2$ 中產生，無需手動調整表格：

詳情	聲稱由……提出	重量
tapered_columns	僅限工匠	1.00
deep_eaves	工匠，大草原	0.50
bay_window	四種維多利亞風格	0.25

這點對論證的合理性至關重要。沒有任何係數會讓人指責 VE 進行了擬合：唯一的輸入變數僅是哪些細節屬於哪些風格，而任何分歧都僅涉及 某個事實、某個位置，這會以透明的方式改變計算結果。

11.2 當其拒絕就

一案作出裁決時

```
?- report([exposed_rafters, deep_eaves, band_windows, art_glass]).  
  
observed: [exposed_rafters,deep_eaves,band_windows,art_glass]  
evidence divides as:  
  37.5%   prairie  
  37.5%   craftsman
```

12.5%	international	
12.5%	first_bay_tradition	
movement support:		
arts_and_crafts		1.5000
bay_tradition		0.5000

平手，這也是理所當然的。綜合來看，這四項細節並無法將「工匠風格」與「草原風格」區分開來：其中兩項是共通的，而另外兩項則各指向一方——本體論已明確指出，「草原風格」在細節處理上與「工匠風格」有許多共通之處。一個「黑盒」分類器本可以選定其中一項，並給出一個高可信度的結果。這告訴視覺工程師（VE），照片中並未包含足以區分的證據，並由此推知應拍攝哪些內容：屋頂形式與體量，這正是兩者實際上有所不同的地方。另外兩項較小的共通點，則分別來自與另一種風格共享的細節：帶狀窗與國際風格，以及外露椽子與「第一灣傳統」。

11.3 證據的份額不等同於機率

輸出結果說明了所觀察到的細節如何 分配到各種可能解釋其成因的風格之中。這是一個客觀的陳述，與「校準機率」不同——後者必須源自基於真實照片所擬合的模型。這是此類模型所依賴的邏輯層面，而非其替代品。

倘若要建構一套視覺系統，它必須具備以下三項功能。首先，需要一個能辨識照片中每個細節的程式。其次，必須對其評分進行驗證，以確保針對每個細節，在評分為約 0.8 的房屋中，該細節約有 80% 的機率存在。第三，該系統必須以類似於未來將呈現的照片進行訓練。目前這些條件皆不具備。本體論（ontology）是刻意被視為問題中較為簡單的一半。

12 為何「風格」一詞會造成誤解，以及該程式如何解決這個問題

加州房源說明中充斥著用來修飾房屋以外事物的風格化詞彙。若僅憑直覺進行詞彙匹配，這些情況無一能正確處理，而在開發過程中，每一項都曾造成實際的失敗：

"Craftsman quality throughout."	workmanship
"Colonial doors and trim."	a door profile
"Victorian molding and high ceilings."	a molding profile
"Enjoy the Mediterranean climate."	the weather
"Contemporary living at its finest."	marketing
"Ranch lifestyle in the country."	not a house
"Quiet mid-century neighborhood."	the neighborhood
"Desirable Eichler neighborhood."	next door to one is not being one
"Walk to Mission schools."	a school district
"Home on Prairie Street."	a street
"Tudor Drive location."	a street
"A home with storybook charm."	puffery
"Spanish tile roof."	a roofing material
"Drive to Monterey Bay in an hour."	a bay

現在它們全都不會產生任何風格標誌。這種錯誤具有通用性——即一個風格詞後接一個非「house」類別的名詞——因此檢查機制也具有通用性：僅使用一份非「house」類別名詞清單來處理每個未修飾的風格詞，而非針對每種風格分別設定特殊情況。

目前採用了三種防護機制：

guard	範例
下一個詞是非「house」類的名詞	quality, doors, climate, neighborhood, Drive
前一個詞會改變意思 該詞彙已被完全移除	Spanish 殖民時期、Sea 牧場、horse 牧場 mission — 先有街區、街道與聖人，然後才有一種風格

"Spanish tile roof" 這點值得特別說明。由於 Spanish 正在修改屋頂材料，因此風格標誌被抑制——但 detail_clay_tile_roof 仍會觸發，因此即使未聲明該風格，相關證據仍會被保留。

13 已知限制與爭議點

之所以將這些內容記錄在此而非隱藏起來，是因為熟悉該領域的讀者總會找到它們。

victorian 這是一個時代，而非一種運動。由於缺乏第五軸，它被歸類於運動軸上。業界慣常將其視為一種風格；但它並非如此。

「草原風格」被記錄為「受影響」，而非「涵蓋」。關於「草原學派」是否屬於「工藝美術運動」，學界尚有爭議：賴特是芝加哥工藝美術協會的創始成員之一。本本體論將「草原風格」記錄為受該運動影響，而非體現該運動，因此「草原風格」的標誌從未宣稱代表「工藝美術運動」。

西班牙風格群組並無統籌框架。「傳教風格」、「西班牙殖民風格」、「地中海風格」與「蒙特雷風格」實為同源風格，因為它們的界定範圍確實存在爭議。若強行設定一個「母風格」，將是強行推行一種業界並未認同的分類體系。

monterey 將兩種風格——1830 年代的殖民風格與 1920 年代的復興風格——混為一談，因為 MLS 的描述也是如此。

eichler 這是一種建築風格，而非設計風格。之所以將其列入，是因為房地產業界將其視為一種風格，且在帕洛奧圖、桑尼維爾、聖拉斐爾和沃爾納特克里克等地，艾克勒（Eichler）風格的房產通常能賣出更高價格。

有兩項標記幾乎不會從房源描述中觸發——minimal_traditional 以及 neo_eclectic，這兩者是房產維護與交易術語，仲介通常不會在描述中寫出。這兩項標記最好從結構化資料中衍生出來。

bay_window 在舊金山，這種建築風格可能因過於常見而缺乏參考價值，因為在那裡，維多利亞式和愛德華式建築幾乎隨處可見。此風格仍被保留下來，用以與「牧場式」建築形成對比，並已標記待審查。

評分範圍僅涵蓋具備已記錄細節的建築風格。七種風格——殖民復興、新古典主義、托斯卡納、裝飾藝術、牧場風格、新折衷主義及當代風格——在本體論中並無典型細節，因此任何一組觀察到的細節都無法將其歸類；而這七種風格中有五種在加州相當常見或極為常見。有七項細節標記未被任何建築風格所聲稱，且不具權重。因此，證據的分配是針對本本體所能評分的建築風格之間進行的劃分，而非針對全部三十三種風格。同樣地，混淆配對是指迄今為止在實務中所遇見的：有十九種建築風格未出現在任何混淆配對中，這記錄的是資料的缺失，而非混淆的缺失。

仍未涵蓋：維多利亞風格體系中的第二帝國風格與哥德復興風格；貝葉斯藝術風格與義大利文藝復興風格；以及在建築形式軸線上，錯層式住宅、聯排別墅、雙層公寓、小木屋、A 字形屋頂住宅與閣樓。

14 尋找插圖

本文中的鉛筆素描係由 Grok 根據編輯指示，專為本文所生成。這些素描屬於某種風格的示意圖，而非特定建築物的記錄。若素描上標有建築師姓名，則代表該建築師的典型風格，而非其實際建造的建築；且其中任何內容均不應被解讀為現有房產的文件記錄。生成圖像在細節

上可能出現錯誤，這是照片所不會有的：每幅圖像均已與其所說明的描述進行比對，而素描與文字之間唯一存在差異之處——即托斯卡納別墅，該處省略了該區塊風格所定義的面向正面的車庫——已在圖說中註明。

至於這些照片則另當別論。它們的選取不僅基於所呈現的內容，更基於其版權狀況，且均來自國會圖書館的兩個收藏系列。

HABS——即國會圖書館轄下的「美國歷史建築調查」，是可公開使用的圖片中最可靠的來源：明確屬於公有領域、高解析度、由專業攝影師拍攝，且專門用於記錄建築。

- 美國國會圖書館，HABS/HAER/HALS 收藏集（地址詳見參考文獻）

卡蘿·M·海史密斯檔案庫則是其彩色對應部分：這些是自 1980 年起在全美各地拍攝的建築物照片，由攝影師捐贈給圖書館，而圖書館方面並未記載任何已知的出版限制。

至於《國家名錄》提名照片，情況則有所不同。這些照片通常是由州或地方的文物保護人員提供，而非聯邦政府僱員，因此美國國家公園管理局（NPS）會援引其自身的內容與版權指引，而非將相關文件宣告為公有領域。這些照片雖是極佳的研究資料，卻也是具風險的出版素材。

本研究背後所採用的文獻庫工具亦反映了這種區分。每張照片皆附有 `rights_status` 連結，預設網址為 `unknown`，而 `publishable_photos` 檢視頁面僅在確認圖片來源標註完整且符合要求時，才會允許該圖片顯示。任何因遺漏而導致的內容均不得發布。本文中的六張照片均通過了此項檢驗。

15 軟體可用性

程式檔案及其測試案例已隨本文發布，並作為獨立下載檔 (*Prolog code (zip)*) 置於文章頁面中。該本體是一個單一的 Prolog 檔案，不依賴 Prolog 系統本身以外的任何元件：它使用標準清單函式庫，而在 Scyer 環境下則會使用另外兩個標準函式庫（詳見下文）。本文中展示的每項查詢與輸出均已在 SWI-Prolog 環境下經過驗證。測試套件以及列印出的 `check`、`describe` 和 `report` 範例，亦分別在 Trealla (Trealla Prolog contributors [n.d.](#))（該本體最初是針對此系統編寫的）以及 Scyer Prolog 環境下執行，這三個系統所產出的文字內容完全一致。事實、關係與查詢謂詞均採用標準的 ISO 規格 Prolog 語法。這三個輸出謂詞——`describe/1`、`check/0` 及 `report/1`——分別使用 `format/2` 與 `forall/2`，這兩者並非 ISO 標準：Trealla 與 SWI-Prolog 已將其內建，而 Scyer 則將其存放於兩個函式庫中，當檔案載入時會自動載入這些函式庫（若其存在）。這兩份檔案均收錄於本文末尾：完整的本體收錄於附錄 A，而語法中的架構部分則收錄於附錄 B。

該本體隨附一套包含 50 個測試案例的測試套件，涵蓋其結構不變量、查詢謂詞以及評分機制：本文中列出的權重、屋頂形狀區分以及兩類證據分類均在該測試套件中被驗證，因此，任何會導致印刷圖表失真的本體變更，都將首先在測試中失敗。這些測試避開了列印謂詞，並在 Trealla、SWI-Prolog 及 Scyer Prolog 環境下均通過測試。

檔案	這是什麼
<code>architectural_styles.pl</code>	本體論：定義、關係、評分
<code>mls_remarks.pl</code>	語法：輸入文字，輸出欄位

16 資料來源

此處的定義遵循標準的美國風格指南，並參照加利福尼亞州的實務。McAlester (2013) 是其他定義所參照的基準，該書對建築形式以及自由經典的安妮女王風格的論述，正是本處將「形式」與「風格」區分開來的基礎。Whiffen (1969) 是關於同一主題的較早學術論述；Poppeliers and Chambers (2003) 及 Blumenson (1981) 則是估價師最可能隨手可得的簡明圖解指南，而其中所使用的術語正是最終出現在房產刊登文案中的內容。

關於加州相關內容，本文參考了以下資料來源：Kirker (1960)（關於十九世紀建築風格）、Longstreth (1983)（關於「海灣傳統」及其第一代建築）、Winter (1980)（關於平房），以及

Gebhard and Winter (2003) (關於南加州的時期復興風格及源自西班牙的建築)。關於牧場風格建築，本文從其歷史的兩端進行了考證：May (1946) 記錄了該建築當初出售時的樣貌，而 Hess (2004) 則呈現了其現今的樣貌。

將建築風格作為資料欄位而非散文進行記錄的做法，遵循《國家名錄》(National Register)：National Park Service (1997a) 說明風格聲明須包含的內容、National Park Service (1997b) 說明登記表所要求的建築分類，以及 Ames and McClelland (2002) 關於戰後住宅開發的內容，此處的「本土風格」分類即源自於此。蓋蒂基金會的 J. Paul Getty Trust (n.d.) 是現存最接近的風格與時期受控詞彙表；其涵蓋範圍比解讀名錄所需的更廣且更淺，且未區分本文所使用的四個軸線。

這些照片來自美國國會圖書館：HABS (Library of Congress n.d.[b]) 以及卡羅·M·海斯密斯檔案館 (Library of Congress n.d.[a])。

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A 本體論：architectural_styles.pl

這是本文所述的知識庫，完整轉載自該期刊物付印時的版本。該知識庫曾在 Trealla、SWI-Prolog 及 Scyer Prolog 環境下運行，僅需標準清單函式庫；若在 Scyer 環境下運行，則還需「軟體可用性」一節中所述的另外兩個標準函式庫。第 827 行以及第 848–849 行的註解暗示存在一種表達「工藝美術」風格的第二種樣式；實際上並不存在此樣式（參見第11 節）。

Prolog 程式碼清單對照表

原子屬於程式碼，各版本完全相同；本表將其與正文對應。

原子	類別	含義
arts_and_crafts	運動	19 世紀末的英國設計運動，旨在反對華麗的維多利亞式設計與大量生產的工業建築。
bay_tradition	運動	橫跨三代的灣區地方傳統：未上漆的紅木或雪松，以及順應地勢而非特定風格的隨性設計……
victorian	運動	一個在美國房地產及古蹟保存領域深具影響力的家族，涵蓋多種華麗且如畫般的住宅風格，時間跨度約為 1840 年至 1910 年；位於加州……
art_deco	樣式	幾何、垂直、裝飾性的現代主義。
colonial	樣式	美國殖民復興風格：對稱、具古典細節，源自喬治亞風格與聯邦風格的先例。
contemporary	樣式	設計應著重於「建造當時」盛行的建築語彙，而非拘泥於歷史復興風格。
craftsman	樣式	這是一種與「工藝美術運動」最密切相關的美國建築風格，在加州最常見的體現形式即是「工匠風格平房」。
dutch_colonial	樣式	其視覺特徵足夠鮮明，足以使其有別於「殖民復興風格」：雙坡屋頂極具辨識度，且與對稱的……幾乎毫無共通之處……
edwardian	樣式	舊金山灣區用以指稱 20 世紀初住宅建築的房地產與古蹟保存術語，特別是舊金山約 1900 至 1920 年間的建築。
eichler	樣式	約瑟夫·艾克勒的「地塊式現代主義」。
english_cottage	樣式	一座小巧、不對稱且風景如畫的復古風格建築，常被誤稱為都鐸式建築。
first_bay_tradition	樣式	第一代灣區建築家——伯納德·梅貝克、厄內斯特·考克斯海德、威利斯·波爾克，以及茱莉亞·摩根的部分作品。
french_normandy	樣式	法式復興風格，亦稱法式諾曼第風格或法式折衷風格。
international	樣式	歐洲現代主義透過紐特拉、辛德勒及其追隨者傳入加州。
italianate	樣式	在舊金山非常常見，特別是在米慎區（Mission）和西擴區（Western Addition）那些正面平整且帶有傾斜凸窗的排屋中。
mediterranean	樣式	地中海復興風格：比西班牙殖民風格更為寬廣且兼收並蓄，通常規模更大，並融合了義大利與文藝復興時期的元素與西班牙元素。
midcentury	樣式	戰後美國的現代主義發展：相較於「國際風格」，其風格更柔和、更注重居家生活，且更注重建材的運用，並以大規模開發的方式興建……
minimal_traditional	樣式	大蕭條後期、戰爭期間及戰後初期那類結構緊湊、幾乎毫無裝飾的住宅——正是戰後大規模住宅興建的直接前身……
mission	樣式	傳教士復興風格：該系列中的「首款」，其設計語彙直接源自加州傳教站。
modern_farmhouse	樣式	一種真正的當代風格語彙，與其借鑒的鄉村方言形式截然不同。
monterey	樣式	這既充滿加州特色，又是兩樣同名的事物。
neo_eclectic	樣式	這是一部融合了歷史元素的郊區題材作品，卻未偏重其中任何一種。
neoclassical	樣式	它重現了古典風格的元素，而非在本土層面上直接引用，這正是它與「殖民復興風格」的區別所在。
prairie	樣式	源自萊特（Wright）的中西部風格，與工藝美術風格（Craftsman）同時期，且在細節處理上多有相似之處。
queen_anne	樣式	這是最為人熟知的維多利亞式建築亞類型，而在舊金山，當人們未加說明地提到「維多利亞式」時，通常指的正是這種風格。
ranch	樣式	建築形式：狹長、低矮、單層。
sea_ranch	樣式	第三代，以索諾瑪海岸開發案命名：約瑟夫·埃舍里克（Joseph Esherick）與 MLTW ——查爾斯·摩爾（Charles Moore）、唐林·林登（Donlyn Lyndon）、威廉·特恩布爾（William Turnbull）、理查德……
second_bay_tradition	樣式	第二代——威廉·沃斯特、加德納·戴利、約瑟夫·埃舍里克。
shed_style	樣式	多個以相對角度傾斜的單坡屋頂，覆蓋於不對稱的建築體量之上。

原子	類別	含義
shingle	樣式	一層連續的木瓦外牆覆蓋在不規則的體量上，使細節服從於表面。
spanish_colonial	樣式	西班牙殖民復興風格：繼「傳教士復興風格」之後出現的、更晚期、範圍更廣且遠為精緻的建築語彙，其設計靈感源自西班牙與拉丁美洲……
stick	樣式	「Stick」與「Stick-Eastlake」：運用垂直與斜向木板，以凸顯——或裝飾——其下方的框架。
storybook	樣式	一種刻意帶有奇幻風格的復古風格，有時也被稱為「童話書都鐸風格」或「漢賽爾與葛蕾特風格」。
streamline_moderne	樣式	作為裝飾藝術風格的水平延續，其設計靈感源自遠洋客輪與空氣動力學。
tudor	樣式	都鐸復興風格。
tuscan	樣式	約 1985 年至 2010 年間的加州地段用語。
bungalow	形制	A 型：低矮、緊湊，為一層或一層半，通常設有醒目的前廊。
farmhouse	形制	A 形式：鄉村傳統建築形式——簡約的雙坡屋頂結構，通常附有門廊，並常有後來的增建部分。
foursquare	形制	美式四方屋 (American Foursquare)，約 1895–1930 年：方正的兩層立方體建築，低矮的四坡屋頂中央設有天窗，全寬門廊，每層設有四間房間。
hacienda	形制	這首先是一份庭院平面圖：單層建築，格局開闊，各房間環繞著一個開放式庭院而佈局。

```

1  % SPDX-License-Identifier: AGPL-3.0-or-later
2  % Copyright (C) 2026 William Bert Craytor. Published by The Valuation Engineer
3  % Journal (Pacific Vista Net). This program is free software: you can
4  % redistribute it and/or modify it under the terms of the GNU Affero General
5  % Public License as published by the Free Software Foundation, either version 3
6  % of the License, or (at your option) any later version. It is distributed
7  % WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or
8  % FITNESS FOR A PARTICULAR PURPOSE; see the COPYING file beside it or
9  % <https://www.gnu.org/licenses/agpl-3.0.html>.
10
11 /* architectural_styles.pl — the architectural ontology as a knowledge base.
12
13 This file is NOT the parser. mls_remarks.pl reads listing text and emits
14 columns; this file says what the resulting names MEAN, how they relate, and
15 what each style looks like. Keeping them apart matters: the grammar answers
16 "did the remark say this?", the ontology answers "what is this?", and the
17 two change for different reasons and at different rates.
18
19 FOUR AXES, orthogonal but not independent. A house has a movement, a style,
20 a form and detailing, recorded separately. The associations among them are
21 EVIDENCE, not logical entailment:
22
23     P(bungalow | craftsman) is high
24     craftsman -> bungalow is false
25
26 Only expresses/2 is containment and licenses inference. influenced_by/2,
27 related/2, typical_form/2, typical_detail/2 and confused_with/2 are
28 declarative: they record what is known without letting it become a
29 conclusion.
30
31 Entry points:
32     describe(+Id)                print a full record
33     styles_of(+Movement, -Ss)    the styles expressing a movement
34     confusable(?A, ?B)           pairs routinely mistaken for each other
35     era(+Year, -Styles)          styles current in a given year
36     axis_of(+Id, -Axis)
37
38 Definitions follow general architectural usage and California/Bay Area
39 trade practice. Where the two disagree the trade reading is given, since
40 this ontology exists to read listing text. Points that are contested rather
41 than settled are marked in the definition itself. */
42
43 :- use_module(library(lists)).
44
45 /* Scryer Prolog keeps format/2 and forall/2 in libraries; SWI-Prolog and
46 Trealla have them built in, and SWI has no library(format) to load. Loading

```

```

47     both under catch/3, after the file, suits all three. */
48 :- initialization(catch(use_module(library(format)), _, true)).
49 :- initialization(catch(use_module(library(iso_ext)), _, true)).
50
51 /* The facts below are grouped by subject -- each style's period, definition,
52    characteristics and detailing sit together -- so the clauses of any one
53    predicate are spread through the file. Declared discontinuous because a
54    strict ISO system otherwise discards the earlier clauses of each: SWI warns
55    and carries on, Scyer overwrites, and the ontology then loads incomplete.
56    See tests/test_architectural_styles.pl. */
57 :- discontinuous(axis/2).
58 :- discontinuous(movement/1).
59 :- discontinuous(style/1).
60 :- discontinuous(form/1).
61 :- discontinuous(detail/1).
62 :- discontinuous(period/3).
63 :- discontinuous(definition/2).
64 :- discontinuous(characteristic/2).
65 :- discontinuous(prevalence/3).
66 :- discontinuous(expresses/2).
67 :- discontinuous(influenced_by/2).
68 :- discontinuous(related/2).
69 :- discontinuous(typical_form/2).
70 :- discontinuous(typical_detail/2).
71 :- discontinuous(confused_with/2).
72 :- discontinuous(problem/1).
73
74 /* =====
75    AXES
76    ===== */
77
78 axis(movement, 'A movement, era or regional tradition. Expressed BY styles; not itself a
79 ↪ style.').
80 axis(style, 'A specific architectural style: a recognisable design vocabulary.').
81 axis(form, 'The shape of the building, independent of its style vocabulary.').
82 axis(detail, 'A visible feature. Evidence of style, never proof of it.').
83
84 axis_of(Id, movement) :- movement(Id), !.
85 axis_of(Id, style) :- style(Id), !.
86 axis_of(Id, form) :- form(Id), !.
87 axis_of(Id, detail) :- detail(Id).
88
89 /* =====
90    MOVEMENTS
91    ===== */
92
93 movement(arts_and_crafts).
94 movement(victorian).
95 movement(bay_tradition).
96
97 period(arts_and_crafts, 1880, 1930).
98 definition(arts_and_crafts,
99 'Late-19th-century British design movement, a reaction against ornate \
100 Victorian design and mass-produced industrial building. Emphasised \
101 simplicity, craftsmanship, natural materials and buildings appropriate to \
102 their setting. A MOVEMENT, not one narrowly defined style: more than one \
103 style expresses it, and its influence reaches others still.').
104
105 period(victorian, 1840, 1910).
106 definition(victorian,
107 'Broad American real-estate and preservation family covering several ornate \
108 and picturesque residential styles, roughly 1840-1910; in California \
109 particularly Italianate, Stick/Eastlake and Queen Anne. Strictly an ERA and \
110 family rather than a movement or a style, and placed on this axis for want of \
111 a fifth: San Francisco trade usage speaks of a "Victorian" as though it were \

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111 a style, so it must be emitted, but it is not one. Note the dates do not stop \
112 at Queen Victoria's death in 1901 - houses in these styles kept being built.').
113
114 period(bay_tradition, 1890, 9999).
115 definition(bay_tradition,
116     'Bay Area regional tradition running through three generations: unpainted \
117 redwood or cedar, informal plans that follow the site rather than a style \
118 book, and a preference for regional material over imported vocabulary. \
119 Distinct from Midcentury Modern, which is International-derived; this line is \
120 regionalist and material-led, and usually one-off architect work.').
121
122 /* =====
123     STYLES — Arts and Crafts line
124     ===== */
125
126 style(craftsman).
127 period(craftsman, 1900, 1930).
128 expresses(craftsman, arts_and_crafts).
129 definition(craftsman,
130     'The American style most closely associated with the Arts and Crafts \
131 movement, and in California most often executed as the Craftsman bungalow. \
132 Visible craftsmanship rather than applied ornament; exposed structure; \
133 natural materials; earth tones; integration with the landscape.').
134 characteristic(craftsman, 'Exposed wood construction - rafters, brackets, beams, substantial
135     ↪ porch posts').
136 characteristic(craftsman, 'Broad low- or moderately-pitched roof with deep eaves').
137 characteristic(craftsman, 'Prominent porch on heavy tapered or square columns').
138 characteristic(craftsman, 'Multi-paned upper sashes, often over plain lower sashes').
139 characteristic(craftsman, 'Built-in cabinetry, benches, bookcases and inglenook fireplaces').
140 characteristic(craftsman, 'Natural materials - wood shingle or siding, river rock, clinker
141     ↪ brick').
142 typical_form(craftsman, bungalow).
143 typical_detail(craftsman, exposed_rafters).
144 typical_detail(craftsman, tapered_columns).
145 typical_detail(craftsman, built_ins).
146 typical_detail(craftsman, deep_eaves).
147 typical_detail(craftsman, knee_braces).
148 typical_detail(craftsman, river_rock).
149 typical_detail(craftsman, box_beams).
150 typical_detail(craftsman, art_glass).
151 prevalence(craftsman, california, very_common).
152
153 style(prairie).
154 period(prairie, 1900, 1920).
155 influenced_by(prairie, arts_and_crafts).
156 related(prairie, craftsman).
157 definition(prairie,
158     'Wright-derived Midwestern style, contemporaneous with Craftsman and \
159 sharing much of its detailing. NOT a subtype of Arts and Crafts: Prairie \
160 School developed alongside the movement and was influenced by it, and \
161 historians describe it as paralleling rather than belonging to it. \
162 Containment would make every Prairie house assert Arts and Crafts, which the \
163 history does not support.').
164 characteristic(prairie, 'Strong horizontal emphasis; massing wider than tall').
165 characteristic(prairie, 'Low-pitched hipped roof with wide overhanging eaves').
166 characteristic(prairie, 'Bands of windows, often with art glass').
167 characteristic(prairie, 'Massive central chimney').
168 typical_detail(prairie, band_windows).
169 typical_detail(prairie, deep_eaves).
170 typical_detail(prairie, art_glass).
171 typical_detail(prairie, built_ins).
172 prevalence(prairie, california, uncommon).
173
174 /* =====
175     STYLES — Bay Area regional line

```

```

174  ===== */
175
176 style(shingle).
177 period(shingle, 1880, 1910).
178 related(shingle, first_bay_tradition).
179 definition(shingle,
180     'A continuous wood-shingle skin stretched over irregular massing, \
181     subordinating detail to surface. Strongly connected to the First Bay \
182     Tradition in Northern California.').
183 characteristic(shingle, 'Unbroken shingle cladding over walls and roof alike').
184 characteristic(shingle, 'Irregular, asymmetrical massing with few corners emphasised').
185 characteristic(shingle, 'Minimal trim; openings cut into the surface').
186 typical_detail(shingle, shingle_siding).
187 prevalence(shingle, california, uncommon).
188
189 style(first_bay_tradition).
190 related(first_bay_tradition, shingle).
191 period(first_bay_tradition, 1890, 1920).
192 expresses(first_bay_tradition, bay_tradition).
193 related(first_bay_tradition, arts_and_crafts).
194 definition(first_bay_tradition,
195     'The first Bay Area regional generation - Bernard Maybeck, Ernest Coxhead, \
196     Willis Polk, and some of Julia Morgan's work. Closely tied to Arts and \
197     Crafts and the Shingle Style; vernacular building adapted to landscape. \
198     Berkeley and the Oakland hills.').
199 characteristic(first_bay_tradition, 'Unpainted wood shingle skin, weathering to grey').
200 characteristic(first_bay_tradition, 'Steep site adaptation; entry sequences that climb or
    ↳ descend').
201 characteristic(first_bay_tradition, 'Exposed structure, often idiosyncratic and hand-worked').
202 typical_detail(first_bay_tradition, shingle_siding).
203 typical_detail(first_bay_tradition, exposed_rafters).
204 prevalence(first_bay_tradition, california, uncommon).
205
206 style(second_bay_tradition).
207 period(second_bay_tradition, 1930, 1965).
208 expresses(second_bay_tradition, bay_tradition).
209 definition(second_bay_tradition,
210     'The second generation - William Wurster, Gardner Dailey, Joseph Esherick. \
211     Simpler, regional, wood-oriented modernism. This is the generation usually \
212     meant by the bare phrase "Bay Region style.').
213 characteristic(second_bay_tradition, 'Plain wood siding or shingle; little ornament').
214 characteristic(second_bay_tradition, 'Large simple windows; indoor-outdoor planning').
215 characteristic(second_bay_tradition, 'Modest scale and deliberately unmonumental massing').
216 typical_detail(second_bay_tradition, shingle_siding).
217 prevalence(second_bay_tradition, california, uncommon).
218
219 style(sea_ranch).
220 period(sea_ranch, 1963, 9999).
221 expresses(sea_ranch, bay_tradition).
222 definition(sea_ranch,
223     'The third generation, named for the Sonoma coast development: Joseph \
224     Esherick and MLTW - Charles Moore, Donlyn Lyndon, William Turnbull, Richard \
225     Whitaker - with Lawrence Halprin's landscape plan. Inherits the regionalism \
226     but is not synonymous with the Second Tradition.').
227 characteristic(sea_ranch, 'Shed roofs, often multiple and at odd angles').
228 characteristic(sea_ranch, 'Unpainted vertical wood siding; no eaves or trim').
229 characteristic(sea_ranch, 'Forms shaped by wind and site rather than by style').
230 typical_detail(sea_ranch, shed_roof).
231 related(sea_ranch, shed_style).
232 prevalence(sea_ranch, california, rare).
233
234 /* =====
235     STYLES — the Victorian family
236     ===== */
237

```

```

238 style(queen_anne).
239 period(queen_anne, 1880, 1910).
240 expresses(queen_anne, victorian).
241 definition(queen_anne,
242     'The most familiar Victorian subtype and, in San Francisco, the one most \
243     often meant by "Victorian" without qualification. Picturesque and \
244     deliberately irregular.').
245 characteristic(queen_anne, 'Asymmetrical facade and complex roofline').
246 characteristic(queen_anne, 'Corner turret or tower').
247 characteristic(queen_anne, 'Wraparound or wrapping porch with turned posts').
248 characteristic(queen_anne, 'Patterned shingles - fishscale, sawtooth - in gable ends').
249 characteristic(queen_anne, 'Spindlework and applied ornament').
250 typical_detail(queen_anne, turret).
251 typical_detail(queen_anne, fishscale_shingles).
252 typical_detail(queen_anne, spindlework).
253 typical_detail(queen_anne, wraparound_porch).
254 typical_detail(queen_anne, bay_window).
255 prevalence(queen_anne, california, common).
256
257 style(italianate).
258 period(italianate, 1855, 1890).
259 expresses(italianate, victorian).
260 definition(italianate,
261     'Very common in San Francisco, particularly in the flat-front and \
262     slanted-bay row houses of the Mission and Western Addition. Vertical \
263     proportions, classical detail applied to a simple box.').
264 characteristic(italianate, 'Bracketed cornice, often deep and heavily ornamented').
265 characteristic(italianate, 'Tall narrow windows, frequently round-headed').
266 characteristic(italianate, 'Flat or very low-pitched roof behind a parapet').
267 characteristic(italianate, 'Slanted or squared bay windows').
268 typical_detail(italianate, bracketed_cornice).
269 typical_detail(italianate, bay_window).
270 prevalence(italianate, california, common).
271
272 style(stick).
273 period(stick, 1870, 1895).
274 expresses(stick, victorian).
275 definition(stick,
276     'Stick and Stick-Eastlake: applied vertical and diagonal boards expressing \
277     - or decorating - the frame beneath. Transitional between Italianate and \
278     Queen Anne, and often mixed with both.').
279 characteristic(stick, 'Applied vertical, horizontal and diagonal stickwork on the wall
    ↪ plane').
280 characteristic(stick, 'Squared bay windows').
281 characteristic(stick, 'Machine-turned Eastlake ornament at porches and gables').
282 typical_detail(stick, bay_window).
283 prevalence(stick, california, uncommon).
284
285 style(edwardian).
286 period(edwardian, 1901, 1920).
287 definition(edwardian,
288     'A Bay Area real-estate and preservation term for early-20th-century \
289     residential work, especially San Francisco c.1900-1920. NOT a Victorian \
290     subtype and deliberately given no parent: it is the FOLLOWING era, and in San \
291     Francisco it effectively means the architecture of the post-1906 rebuilding. \
292     Primarily a period designation rather than a discrete formal style - \
293     generally less ornate than late Victorian work, often incorporating \
294     Classical Revival, Craftsman or transitional detailing. A classifier should \
295     not treat it as having a fixed set of characteristics.').
296 characteristic(edwardian, 'Plainer wall surfaces than Victorian work; restrained ornament').
297 characteristic(edwardian, 'Bay windows retained, detail simplified').
298 characteristic(edwardian, 'Frequently mixed vocabulary - classical, Craftsman or
    ↪ transitional').
299 typical_detail(edwardian, bay_window).
300 prevalence(edwardian, california, common).

```

```

301
302 /* =====
303 STYLES — Period Revival
304 ===== */
305
306 style(tudor).
307 period(tudor, 1910, 1940).
308 definition(tudor,
309     'Tudor Revival. Routinely over-applied in California listing copy to any \
310 steep-roofed Period Revival house; see english_cottage and french_normandy \
311 for the readings it displaces.').
312 characteristic(tudor, 'Steeply pitched front-facing gables').
313 characteristic(tudor, 'Half-timbering with stucco or brick infill').
314 characteristic(tudor, 'Tall narrow casement windows in multiple groups').
315 characteristic(tudor, 'Massive prominent chimney, sometimes with chimney pots').
316 typical_detail(tudor, half_timbering).
317 confused_with(tudor, english_cottage).
318 confused_with(tudor, french_normandy).
319 prevalence(tudor, california, common).
320
321 style(english_cottage).
322 period(english_cottage, 1920, 1940).
323 definition(english_cottage,
324     'Small, asymmetrical and picturesque Period Revival, frequently miscalled \
325 Tudor. The distinguishing absence is half-timbering; the distinguishing \
326 presence is the rolled or catslide roof sweeping low over the entry.').
327 characteristic(english_cottage, 'Steep roof sweeping low, sometimes to head height, over the
    ↪ entry').
328 characteristic(english_cottage, 'Asymmetrical, cottage-scaled massing').
329 characteristic(english_cottage, 'Stucco, brick or stone; little or no half-timbering').
330 characteristic(english_cottage, 'Arched plank entry door').
331 confused_with(english_cottage, tudor).
332 confused_with(english_cottage, storybook).
333 prevalence(english_cottage, california, common).
334
335 style(french_normandy).
336 period(french_normandy, 1920, 1940).
337 definition(french_normandy,
338     'French Revival, also called French Normandy or French Eclectic. California \
339 has substantial numbers, and they too are commonly mislabelled Tudor.').
340 characteristic(french_normandy, 'Steeply pitched HIPPED roof - the clearest separation from
    ↪ Tudor').
341 characteristic(french_normandy, 'Round or polygonal entry turret, often housing the stair').
342 characteristic(french_normandy, 'Brick, stone or stucco, sometimes mixed').
343 confused_with(french_normandy, tudor).
344 prevalence(french_normandy, california, uncommon).
345
346 style(storybook).
347 period(storybook, 1920, 1940).
348 definition(storybook,
349     'Deliberately whimsical Period Revival, sometimes called Storybook Tudor or \
350 Hansel-and-Gretel. A real Bay Area and Southern California idiom, though the \
351 word is also loose marketing copy for anything merely cute.').
352 characteristic(storybook, 'Exaggeratedly steep and irregular rooflines').
353 characteristic(storybook, 'False thatch - rolled eaves imitating a thatched roof').
354 characteristic(storybook, 'Turrets, undulating walls, deliberately crooked detail').
355 confused_with(storybook, english_cottage).
356 prevalence(storybook, california, rare).
357
358 style(colonial).
359 period(colonial, 1890, 1955).
360 definition(colonial,
361     'American Colonial Revival: symmetrical, classically detailed, derived from \
362 Georgian and Federal precedent. Not to be confused with Spanish Colonial \
363 Revival, which shares only the word.').

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364 characteristic(colonial, 'Symmetrical facade with centred entry').
365 characteristic(colonial, 'Classical entry surround - pilasters, pediment, fanlight').
366 characteristic(colonial, 'Double-hung sash windows in balanced pairs').
367 confused_with(colonial, spanish_colonial).
368 prevalence(colonial, california, common).
369
370 style(dutch_colonial).
371 period(dutch_colonial, 1895, 1940).
372 definition(dutch_colonial,
373     'Visually distinctive enough to warrant separation from Colonial Revival: \
374 the gambrel roof is unmistakable and shares little with the symmetrical \
375 Georgian-derived form.').
376 characteristic(dutch_colonial, 'Gambrel roof - two pitches to a side, the lower much
    ↳ steeper').
377 characteristic(dutch_colonial, 'Full-width shed dormer front and often rear').
378 prevalence(dutch_colonial, california, uncommon).
379
380 style(neoclassical).
381 period(neoclassical, 1895, 1950).
382 definition(neoclassical,
383     'Reproduces the classical vocabulary rather than quoting it at domestic \
384 scale, which is what separates it from Colonial Revival.').
385 characteristic(neoclassical, 'Full-height portico with columns and pediment').
386 characteristic(neoclassical, 'Strict symmetry').
387 characteristic(neoclassical, 'Correct classical orders rather than free adaptation').
388 confused_with(neoclassical, colonial).
389 prevalence(neoclassical, california, rare).
390
391 /* =====
392     STYLES — the Spanish-derived group
393     Siblings, deliberately without an umbrella parent: the boundaries between
394     them are genuinely contested and inventing a family would assert a taxonomy
395     the trade does not share.
396     ===== */
397
398 style(mission).
399 period(mission, 1890, 1915).
400 definition(mission,
401     'Mission Revival: the FIRST of the group, taking its vocabulary directly \
402 from the California missions. Plainer and earlier than Spanish Colonial \
403 Revival, which supplanted it.').
404 characteristic(mission, 'Curvilinear shaped parapet - the espadana gable').
405 characteristic(mission, 'Arcaded porch or walkway').
406 characteristic(mission, 'Smooth stucco wall, large unornamented surfaces').
407 characteristic(mission, 'Quatrefoil window; occasional bell tower').
408 typical_detail(mission, mission_parapet).
409 typical_detail(mission, arcade).
410 typical_detail(mission, clay_tile_roof).
411 confused_with(mission, spanish_colonial).
412 prevalence(mission, california, uncommon).
413
414 style(spanish_colonial).
415 period(spanish_colonial, 1915, 1940).
416 definition(spanish_colonial,
417     'Spanish Colonial Revival: the later, broader and far more elaborate \
418 vocabulary that followed Mission Revival, drawing on Spain and Latin America \
419 rather than the missions alone. The commonest of the group in California.').
420 characteristic(spanish_colonial, 'White or cream stucco walls').
421 characteristic(spanish_colonial, 'Low-pitched red clay tile roof, little eave overhang').
422 characteristic(spanish_colonial, 'Arched openings - doors, windows, passageways').
423 characteristic(spanish_colonial, 'Wrought iron grilles, balconets and railings').
424 characteristic(spanish_colonial, 'Asymmetrical massing, often around a courtyard').
425 typical_detail(spanish_colonial, clay_tile_roof).
426 typical_detail(spanish_colonial, arched_openings).
427 typical_detail(spanish_colonial, wrought_iron).

```

```

428 typical_detail(spanish_colonial, courtyard).
429 typical_form(spanish_colonial, hacienda).
430 confused_with(spanish_colonial, mission).
431 confused_with(spanish_colonial, mediterranean).
432 prevalence(spanish_colonial, california, very_common).
433
434 style(mediterranean).
435 period(mediterranean, 1915, 1940).
436 definition(mediterranean,
437     'Mediterranean Revival: broader and more eclectic than Spanish Colonial, \
438 usually larger, and mixing Italian and Renaissance sources with Spanish ones. \
439 The boundary with Spanish Colonial Revival is contested and porous.').
440 characteristic(mediterranean, 'Larger, often symmetrical, frequently two-storey').
441 characteristic(mediterranean, 'Tile roof with greater eave overhang than Spanish Colonial').
442 characteristic(mediterranean, 'Classical or Renaissance detail - balustrades, quoins,
↳ arcades').
443 typical_detail(mediterranean, clay_tile_roof).
444 typical_detail(mediterranean, arched_openings).
445 confused_with(mediterranean, spanish_colonial).
446 confused_with(mediterranean, tuscan).
447 prevalence(mediterranean, california, common).
448
449 style(monterey).
450 period(monterey, 1830, 1945).
451 definition(monterey,
452     'Uniquely Californian, and two things sharing a name. The historic MONTEREY \
453 COLONIAL (1830s-40s) is a hybrid of Spanish/Mexican adobe construction with \
454 Anglo-American and New England elements - the Larkin House in Monterey is the \
455 prototype. The MONTEREY REVIVAL (1920s-40s) is the later commercial style. \
456 One identifier serves both because MLS copy almost never distinguishes them, \
457 and in California a listing saying "Monterey" means the revival in nearly \
458 every case.').
459 characteristic(monterey, 'Two storeys with a cantilevered second-storey balcony across the
↳ facade').
460 characteristic(monterey, 'Stucco or adobe walls; low-pitched tile or shingle roof').
461 characteristic(monterey, 'Spanish Colonial detail applied to an Anglo-American form').
462 typical_detail(monterey, second_story_balcony).
463 typical_detail(monterey, clay_tile_roof).
464 typical_detail(monterey, adobe).
465 prevalence(monterey, california, uncommon).
466
467
468 style(tuscan).
469 period(tuscan, 1985, 2010).
470 definition(tuscan,
471     'The California tract idiom of roughly 1985-2010. Recorded separately from \
472 Mediterranean Revival rather than folded into it because it is a distinct \
473 market period with a distinct - and now often negative - buyer reaction, \
474 which matters more for valuation than its stylistic ancestry.').
475 characteristic(tuscan, 'Heavy textured stucco, often in ochre or terracotta tones').
476 characteristic(tuscan, 'Stacked stone veneer at the base and entry').
477 characteristic(tuscan, 'Arched entries and window heads; faux-aged finishes').
478 characteristic(tuscan, 'Prominent front-facing garage').
479 confused_with(tuscan, mediterranean).
480 prevalence(tuscan, california, common).
481
482 /* =====
483 STYLES — Shingle, and the modern line
484 ===== */
485
486
487 style(art_deco).
488 period(art_deco, 1925, 1940).
489 definition(art_deco,
490     'Geometric, vertical, ornamental modernism. More common in California \

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```

491 multifamily and commercial work than in single-family houses, but the \
492 residential stock is real, particularly in San Francisco, Oakland and \
493 Alameda.').
494 characteristic(art_deco, 'Vertical emphasis; stepped or setback massing').
495 characteristic(art_deco, 'Zigzag, chevron and floral geometric ornament').
496 characteristic(art_deco, 'Smooth wall surfaces with decorative concentration at openings').
497 confused_with(art_deco, streamline_moderne).
498 prevalence(art_deco, california, uncommon).
499
500 style(streamline_moderne).
501 period(streamline_moderne, 1930, 1945).
502 related(streamline_moderne, art_deco).
503 definition(streamline_moderne,
504     'The horizontal successor to Art Deco, borrowing from ocean liners and \
505 aerodynamics. The two are frequently conflated and look nothing alike: Deco \
506 is vertical and ornamental, Moderne horizontal and smooth.').
507 characteristic(streamline_moderne, 'Rounded corners and curved wall planes').
508 characteristic(streamline_moderne, 'Horizontal banding, often as raised speed lines').
509 characteristic(streamline_moderne, 'Glass block, porthole windows, pipe railings').
510 characteristic(streamline_moderne, 'Flat roof; smooth white or pastel stucco').
511 typical_detail(streamline_moderne, glass_block).
512 confused_with(streamline_moderne, art_deco).
513 prevalence(streamline_moderne, california, uncommon).
514
515 style(international).
516 period(international, 1930, 1960).
517 definition(international,
518     'European modernism as it reached California through Neutra, Schindler and \
519 their followers. Deliberately placeless - which is what separates it from the \
520 Bay Tradition, regionalist and wood-led, and from Midcentury Modern, its \
521 later, softer and more domestic American development.').
522 characteristic(international, 'Flat roof; no eave, no ornament, no cornice').
523 characteristic(international, 'Smooth unbroken wall plane, usually white').
524 characteristic(international, 'Ribbon windows and cantilevered volumes').
525 typical_detail(international, band_windows).
526 confused_with(international, midcentury).
527 prevalence(international, california, rare).
528
529 style(midcentury).
530 period(midcentury, 1945, 1975).
531 definition(midcentury,
532     'The post-war American development of modernism: softer, more domestic and \
533 more material-friendly than the International Style, and built at tract scale \
534 as well as by architects.').
535 characteristic(midcentury, 'Open plan; low horizontal massing').
536 characteristic(midcentury, 'Large glazing, often floor to ceiling; clerestory windows').
537 characteristic(midcentury, 'Post-and-beam structure left visible').
538 characteristic(midcentury, 'Flat or low-pitched gable roof with wide overhang').
539 typical_detail(midcentury, post_and_beam).
540 typical_detail(midcentury, floor_to_ceiling_glass).
541 typical_detail(midcentury, clerestory).
542 typical_form(midcentury, ranch).
543 prevalence(midcentury, california, very_common).
544
545 style(eichler).
546 period(eichler, 1949, 1974).
547 related(eichler, midcentury).
548 definition(eichler,
549     'Joseph Eichler's tract modernism. Strictly a BUILDER rather than a style, \
550 but the trade uses it as a style designation and it carries a measurable \
551 premium in Palo Alto, Sunnyvale, San Rafael and Walnut Creek - which is \
552 reason enough for its own identifier in an appraisal ontology, whatever an \
553 architectural historian would say.').
554 characteristic(eichler, 'Post-and-beam structure with exposed beams').
555 characteristic(eichler, 'Floor-to-ceiling glass to private rear yards; blank street facade').

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556 characteristic(eichler, 'Central atrium entry').
557 characteristic(eichler, 'Radiant-heated concrete slab; flat or low-gable roof').
558 typical_detail(eichler, post_and_beam).
559 typical_detail(eichler, atrium).
560 typical_detail(eichler, floor_to_ceiling_glass).
561 typical_detail(eichler, radiant_slab).
562 prevalence(eichler, california, uncommon).
563
564 style(shed_style).
565 period(shed_style, 1960, 1985).
566 related(shed_style, sea_ranch).
567 definition(shed_style,
568     'Multiple shed roofs at opposing angles over asymmetrical massing. Sea \
569 Ranch is its most distinguished expression rather than a synonym for it.').
570 characteristic(shed_style, 'Several shed roofs meeting at odd angles').
571 characteristic(shed_style, 'Vertical wood siding; minimal trim and ornament').
572 characteristic(shed_style, 'Deliberately site-responsive, irregular plan').
573 typical_detail(shed_style, shed_roof).
574 prevalence(shed_style, california, uncommon).
575
576 /* =====
577    STYLES — post-war vernacular and after
578    ===== */
579
580 style(minimal_traditional).
581 period(minimal_traditional, 1935, 1950).
582 definition(minimal_traditional,
583     'The compact, almost ornament-free house of the late Depression, the war \
584 years and immediately after - the direct precursor to the mass post-war \
585 Ranch, and enormously common in California. Conspicuously absent from most \
586 style lists because it is unglamorous. NOTE this is a preservation term: \
587 agents write "starter home" or "1940s cottage", so it is far better derived \
588 from structured data (year built, small footprint, single storey) than from \
589 listing text.').
590 characteristic(minimal_traditional, 'Compact, usually single storey, small footprint').
591 characteristic(minimal_traditional, 'Low or moderate roof pitch, close eaves').
592 characteristic(minimal_traditional, 'A vestigial front-facing gable as the only gesture').
593 characteristic(minimal_traditional, 'Almost no applied ornament').
594 prevalence(minimal_traditional, california, very_common).
595
596 style(ranch).
597 period(ranch, 1935, 1975).
598 definition(ranch,
599     'A recognised architectural tradition - Cliff May, the California ranch, \
600 the western and suburban ranch - and separately a physical shape. This \
601 identifier is the STYLE; form(ranch) is the shape. A house may have either \
602 without the other.').
603 characteristic(ranch, 'Long, low, single-storey, ground-hugging massing').
604 characteristic(ranch, 'Low-pitched roof with wide eaves').
605 characteristic(ranch, 'Attached garage facing the street; picture window').
606 characteristic(ranch, 'Indoor-outdoor planning to a rear patio').
607 typical_form(ranch, ranch).
608 prevalence(ranch, california, very_common).
609
610 style(modern_farmhouse).
611 period(modern_farmhouse, 2010, 9999).
612 definition(modern_farmhouse,
613     'A genuine contemporary style vocabulary, and a different thing from the \
614 rural vernacular FORM it borrows from. A 1900 farmhouse is the form without \
615 the style; a 2021 build is usually the style and was never a farm.').
616 characteristic(modern_farmhouse, 'Board-and-batten siding, usually white or very dark').
617 characteristic(modern_farmhouse, 'Standing-seam metal roof').
618 characteristic(modern_farmhouse, 'Black-framed windows; large simple gables').
619 characteristic(modern_farmhouse, 'Stripped-down vernacular massing without ornament').
620 typical_detail(modern_farmhouse, board_and_batten).

```

```

621 typical_form(modern_farmhouse, farmhouse).
622 prevalence(modern_farmhouse, california, common).
623
624 style(neo_eclectic).
625 period(neo_eclectic, 1980, 9999).
626 definition(neo_eclectic,
627     'Suburban work combining historical motifs without committing to any one of \
628     them. Far better than calling everything built after 1980 "Contemporary". \
629     NOTE agents never write the word, so this will effectively only appear in \
630     trade or appraisal text.').
631 characteristic(neo_eclectic, 'Fragments of several revivals applied to one elevation').
632 characteristic(neo_eclectic, 'Mixed cladding - stone veneer, stucco, siding - on one face').
633 characteristic(neo_eclectic, 'Prominent projecting garage; two-storey entry feature').
634 prevalence(neo_eclectic, california, very_common).
635
636 style(contemporary).
637 period(contemporary, 1960, 9999).
638 definition(contemporary,
639     'Design emphasising the architectural vocabulary current AT THE TIME OF \
640     CONSTRUCTION rather than adherence to a historical revival. The term is \
641     TEMPORALLY RELATIVE: a 1975 California house is properly Contemporary and \
642     does not stop being so as the decades pass. A Contemporary house may still \
643     borrow historical references, so "no historical vocabulary" is too strict a \
644     reading.').
645 characteristic(contemporary, 'Simplified forms; reduced applied ornament').
646 characteristic(contemporary, 'Large glazing; unconventional roof geometry').
647 characteristic(contemporary, 'Open plan').
648 prevalence(contemporary, california, very_common).
649
650 /* =====
651     FORMS — the shape of the building, independent of style
652     ===== */
653
654 form(bungalow).
655 definition(bungalow,
656     'A FORM: low, compact, one or one-and-a-half storeys, usually with a \
657     prominent front porch. Very frequently executed in Craftsman vocabulary in \
658     California, which is why the two are conflated - but a Chicago bungalow is \
659     not Arts and Crafts, and plenty of California bungalows are plain builder \
660     work. A house is NOT a bungalow merely because it has Arts and Crafts \
661     detailing.').
662 prevalence(bungalow, california, very_common).
663
664 form(foursquare).
665 definition(foursquare,
666     'American Foursquare, c.1895-1930: a boxy two-storey cube, low hipped roof \
667     with a central dormer, full-width porch, four rooms to a floor. A FORM - it \
668     was built in Craftsman, Prairie, Colonial Revival and plain vernacular dress \
669     alike, so it implies no style.').
670 prevalence(foursquare, california, common).
671
672 form(ranch).
673 definition(ranch,
674     'A FORM: long, low, single-storey. Distinct from style(ranch): a 2020 \
675     contemporary house may have the ranch shape without the ranch style \
676     vocabulary, and a ranch-influenced split-level may have the style without the \
677     shape.').
678 prevalence(ranch, california, very_common).
679
680 form(farmhouse).
681 definition(farmhouse,
682     'A FORM: the rural vernacular shape - simple gabled volume, often with a \
683     porch and later additions. See style(modern_farmhouse) for the contemporary \
684     vocabulary that borrows from it.').
685 prevalence(farmhouse, california, common).

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```

686 form(hacienda).
687 definition(hacienda,
688   'A courtyard PLAN as much as anything: single storey, rambling, rooms \
689   arranged around an open court. Placed on the form axis deliberately - in \
690   California MLS copy the word means almost anything vaguely Spanish and \
691   sprawling, so it should carry no stylistic inference.').
692 prevalence(hacienda, california, uncommon).
693
694
695 /* =====
696   DETAILS — evidence, never proof
697   ===== */
698
699 detail(exposed rafters). detail(box_beams). detail(built_ins).
700 detail(tapered_columns). detail(deep_eaves). detail(knee_braces).
701 detail(river_rock). detail(stone_piers). detail(divided_light).
702 detail(art_glass). detail(wainscoting). detail(window_seat).
703 detail(turret). detail(fishscale_shingles). detail(spindlework).
704 detail(bracketed_cornice). detail(wraparound_porch). detail(bay_window).
705 detail(pocket_doors). detail(mansard_roof). detail(half_timbering).
706 detail(clay_tile_roof). detail(mission_parapet). detail(arcade).
707 detail(arched_openings). detail(wrought_iron). detail(courtyard).
708 detail(second_story_balcony). detail(adobe). detail(post_and_beam).
709 detail(atrium). detail(floor_to_ceiling_glass). detail(clerestory).
710 detail(radiant_slab). detail(band_windows). detail(glass_block).
711 detail(board_and_batten). detail(shingle_siding). detail(shed_roof).
712 /* Roof shape. The article calls roof form the most reliable discriminator
713    there is, so the shapes that do the discriminating are recorded like any
714    other detail -- evidence, weighted by how many styles claim them. A gable
715    is claimed by many and is therefore weak evidence, which is correct: it is
716    the commonest roof in the state. */
717 detail(gable_roof). detail(hipped_roof). detail(gambrel_roof).
718 detail(catslide_roof).
719 detail(porte_cochere).
720
721 /* roof shape as evidence, from the distinctions the article draws */
722 typical_detail(french_normandy, turret). /* round or polygonal entry turret */
723 typical_detail(storybook, turret). /* a turret is part of the whimsy */
724 typical_detail(tudor, gable_roof).
725 typical_detail(french_normandy, hipped_roof).
726 typical_detail(english_cottage, catslide_roof).
727 typical_detail(dutch_colonial, gambrel_roof).
728 typical_detail(prairie, hipped_roof).
729 typical_detail(craftsman, gable_roof).
730 typical_detail(queen_anne, gable_roof).
731 typical_detail(storybook, catslide_roof).
732 typical_detail(minimal_traditional, gable_roof).
733
734 /* =====
735   QUERIES
736   ===== */
737
738 /* the styles expressing a movement */
739 styles_of(Movement, Styles) :-
740   movement(Movement),
741   findall(S, expresses(S, Movement), Styles).
742
743 /* pairs routinely mistaken for each other, in both directions */
744 confusable(A, B) :- confused_with(A, B).
745 confusable(A, B) :- confused_with(B, A).
746
747 /* styles current in a given year */
748 era(Year, Styles) :-
749   findall(S, ( style(S), period(S, From, To), Year >= From, Year <= To ),
750     Styles).

```

```

751
752 /* details that are evidence for a style. NOT a rule for inferring it: several
753 styles share most of this vocabulary, which is why detailing sets no style
754 flag in the parser. */
755 evidence_for(Style, Details) :-
756     findall(D, typical_detail(Style, D), Details).
757
758 /* which styles a detail is evidence for -- usually more than one, which is
759 the point */
760 evidence_of(Detail, Styles) :-
761     detail(Detail),
762     findall(S, typical_detail(S, Detail), Styles).
763
764 /* ----- printing ----- */
765
766 describe(Id) :-
767     axis_of(Id, Axis),
768     format("~w  [~w]~n", [Id, Axis]),
769     ( period(Id, F, T) -> format("  period: ~w~~w~n", [F, T]) ; true ),
770     ( prevalence(Id, california, P) -> format("  in California: ~w~n", [P]) ; true ),
771     ( expresses(Id, M) -> format("  expresses: ~w~n", [M]) ; true ),
772     ( influenced_by(Id, I) -> format("  influenced by: ~w (NOT containment)~n", [I]) ; true ),
773     ( definition(Id, D) -> format("  ~w~n", [D]) ; true ),
774     ( characteristic(Id, _)
775       -> format("  characteristics:~n", []),
776         forall(characteristic(Id, C), format("    - ~w~n", [C]))
777       ; true ),
778     ( typical_detail(Id, _)
779       -> format("  typical detailing (evidence, not entailment):~n", []),
780         forall(typical_detail(Id, Dt), format("    - ~w~n", [Dt]))
781       ; true ),
782     /* setof, not forall: confused_with/2 is often declared in BOTH
783     directions, so a bare forall lists each pair twice */
784     ( setof(X, confusable(Id, X), Xs)
785       -> format("  routinely confused with:~n", []),
786         forall(member(X, Xs), format("    - ~w~n", [X]))
787       ; true ).
788
789 /* ----- integrity checks -----
790 Run check/0 after editing. These are the invariants the ontology relies on;
791 the parser's tests cover behaviour, these cover structure. */
792
793 check :-
794     findall(E, problem(E), Es),
795     ( Es == [] -> format("ontology OK~n", [])
796     ; forall(member(E, Es), format("PROBLEM: ~w~n", [E])) ).
797
798 problem(no_definition(Id)) :- ( style(Id) ; movement(Id) ; form(Id) ),
799                               \+ definition(Id, _).
800 problem(no_period(Id)) :- ( style(Id) ; movement(Id) ), \+ period(Id, _, _).
801 problem(parent_not_movement(S, M)) :- expresses(S, M), \+ movement(M).
802 problem(child_not_style(S, M)) :- expresses(S, M), \+ style(S).
803 problem(unknown_detail(S, D)) :- typical_detail(S, D), \+ detail(D).
804 problem(unknown_form(S, F)) :- typical_form(S, F), \+ form(F).
805 problem(unknown_in_confusion(A, B)) :- confused_with(A, B),
806                                       ( \+ style(A) ; \+ style(B) ).
807 problem(style_and_movement(Id)) :- style(Id), movement(Id).
808
809 /* =====
810 SCORING FROM OBSERVED DETAIL
811 Given the details seen across several photographs of one house, weigh the
812 evidence for each style. Documented rules, arguable but written down -
813 which is the point: an expert may disagree with a weighting, and can see
814 exactly which one to argue with.
815

```

```

816 Specificity is COMPUTED, not declared. A detail shared by one style
817 discriminates; a detail shared by six barely does. That is the inverse of
818 how many styles claim it, and it falls out of typical_detail/2 without any
819 new facts:
820
821     tapered_columns -> craftsman only           weight 1.00
822     deep_eaves      -> craftsman, prairie        weight 0.50
823     bay_window      -> four Victorian styles    weight 0.25
824
825 The result is a SHARE of the evidence, not a probability. It says how the
826 observed detailing divides among the styles that could explain it, which is
827 what "80% Craftsman, 20% Arts and Crafts beyond Craftsman" means. Calibrated
828 probabilities have to come from a fitted model on real photographs; this is
829 the logical layer that model would feed.
830     ===== */
831
832 /* how many styles claim this detail; 1 means diagnostic */
833 detail_specificity(Detail, W) :-
834     evidence_of(Detail, Styles),
835     length(Styles, N), N > 0,
836     W is 1.0 / N.
837
838 /* weight of evidence for one style from a set of observed details */
839 style_support(Details, Style, Support) :-
840     style(Style),
841     findall(W, ( member(D, Details),
842                 typical_detail(Style, D),
843                 detail_specificity(D, W) ), Ws),
844     sum_(Ws, Support),
845     Support > 0.
846
847 /* the same for a movement, gathered from the styles that express it -- this
848 is how a detail can support "Arts and Crafts beyond Craftsman": it belongs
849 to a sibling style under the same movement */
850 movement_support(Details, Movement, Support) :-
851     movement(Movement),
852     findall(S, ( style_support(Details, St, S), expresses(St, Movement) ), Ss),
853     sum_(Ss, Support),
854     Support > 0.
855
856 sum_([], 0.0).
857 sum_([X|Xs], S) :- sum_(Xs, S0), S is S0 + X.
858
859 /* Ranked shares. Ranked is a list of Style-Percent, highest first, and the
860 percentages sum to 100 across the styles with any support. */
861 style_shares(Details, Ranked) :-
862     findall(Sup-St, style_support(Details, St, Sup), Pairs),
863     sum_pairs_(Pairs, Total),
864     Total > 0,
865     findall(Pct-St, ( member(Sup-St, Pairs),
866                       Pct0 is (Sup / Total) * 100,
867                       Pct is round(Pct0 * 10) / 10 ), Scored),
868     sort_desc_(Scored, Ranked).
869
870 /* Descending standard order, duplicates kept. Written out rather than called
871 as sort/4, which is not ISO and is absent from some systems; the list is at
872 most one entry per style, so an insertion sort costs nothing. */
873 sort_desc_([], []).
874 sort_desc_([X|Xs], Sorted) :-
875     sort_desc_(Xs, Rest),
876     insert_desc_(X, Rest, Sorted).
877
878 insert_desc_(X, [], [X]).
879 insert_desc_(X, [Y|T], Result) :-
880     ( X @>= Y

```

```

881     -> Result = [X, Y|T]
882     ; Result = [Y|Rest],
883     insert_desc_(X, T, Rest) ).
884
885 sum_pairs_([], 0.0).
886 sum_pairs_([S-_|T], Total) :- sum_pairs_(T, T0), Total is T0 + S.
887
888 /* The reading an appraiser would want: the leading style, its share, and what
889    else the detailing supports. Deliberately NOT a hard classification -- it
890    reports the division of evidence and leaves the call to the reader. */
891 classify(Details, leading(Style, Pct), Rest) :-
892     style_shares(Details, [Pct-Style|Rest]).
893
894 report(Details) :-
895     format("observed: ~w~n", [Details]),
896     ( style_shares(Details, Ranked)
897     -> format("evidence divides as:~n", []),
898         forall(member(P-S, Ranked), format(" ~1f%-t~10| ~w~n", [P, S]))
899     ; format("no style evidence in that detailing~n", []) ),
900     ( movement_support(Details, _, _)
901     -> format("movement support:~n", []),
902         forall(movement_support(Details, Mv, Sv),
903             format(" ~w~t~24| ~4f~n", [Mv, Sv]))
904     ; true ).

```

B 《文法：建築專欄》 mls_remarks.pl

該語法檔案共有 2,431 行，其中大部分內容與風格無關：品質、狀況、附屬建築、車輛存放、銷售條件等。此處僅轉載其建築部分，即本期所採用的檔案第 426 至 1093 行，內容涵蓋風格線索、風格詞修飾詞「guard」、灣區地域性規範以及建築細節。行號均依據完整檔案編號。

```

426 /* ----- Architectural style -----
427    `craftsman` was not in the grammar at all — only `craftsmanship`, a quality
428    word — so "1912 Craftsman" registered neither the style nor the era. Style
429    is one of the "good bones" that decides whether an old house is restored or
430    torn down, so it belongs beside geology here.
431
432    Core grammar, not a tier pack: a Craftsman is a Craftsman in Vallejo as much
433    as in Piedmont, it is merely rarer. (The Bay Area pack already carries
434    `eichler` and `victorian`; those stay where they are — %% REVIEW whether
435    they should move here too.) */
436 /* Styles are not a flat list — some CONTAIN others:
437
438     ARTS AND CRAFTS (the movement)
439     |
440     +-- CRAFTSMAN           these overlap, and the overlap
441     |                       is the "Craftsman bungalow"
442     BUNGALOW -----+
443
444    Arts and Crafts is the parent: a Craftsman is one, but so is a Greene &
445    Greene ultimate bungalow or a Stickley-influenced foursquare, and "arts and
446    crafts" on its own does NOT mean Craftsman. Bungalow is a FORM, not a style
447    — Chicago and California bungalows are not Craftsman — so it sits partly
448    outside. Only the intersection is a Craftsman bungalow.
449
450    Encoded as containment: craftsman implies arts_and_crafts (arch_parent/2),
451    bungalow stands alone, and a remark saying "Craftsman bungalow" sets all
452    three. The parent flag is therefore true for more houses than the child, so
453    the two are correlated but not redundant.
454
455    %% REVIEW the same question elsewhere in this list: Queen Anne is a
456    Victorian subtype and Edwardian is arguably a different era, yet all three
457    currently collapse into style_victorian. Spanish/Mediterranean/hacienda

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458     likewise. */
459 /* STYLE and FORM are different axes and are kept in separate lists.
460
461     style = the design vocabulary      Arts and Crafts, Craftsman, Tudor
462     form  = the shape of the building  bungalow, cottage, two-storey
463
464     You can have an Arts and Crafts bungalow, a two-storey Arts and Crafts
465     house, an Arts and Crafts cottage, or a large Arts and Crafts country house
466     that looks nothing like a bungalow. The two are strongly associated in
467     California only because the Craftsman bungalow became the commonest
468     expression of the movement — they are not interchangeable, and a house is
469     NOT a bungalow merely because it has Arts and Crafts detailing.
470
471     %% REVIEW `ranch` and `farmhouse`: both read as style AND form in MLS usage
472     ("ranch style" is a designation; a ranch is also a low single-storey shape).
473     They sit in form for now. */
474 /* MOVEMENTS and FAMILIES are a separate axis from styles. They are different
475     kinds of entity, and putting them on one axis was what made the ontology
476     unsafe for inference: arts_and_crafts is a MOVEMENT, victorian an ERA and
477     family, bay_tradition a regional TRADITION, while craftsman, italianate and
478     sea_ranch are styles. A movement is expressed BY styles; it is not one.
479
480     Every arch_parent/2 rule maps a style to a movement — there are no
481     style-to-style containments — so the two lists partition cleanly.
482
483     %% NOTE `victorian` is strictly an era/family rather than a movement, and
484     sits here for want of a third axis. In San Francisco trade usage it is
485     spoken of as though it were a style, which is why it must be emitted at all;
486     it is not one. */
487 arch_movements([arts_and_crafts, victorian, bay_tradition]).
488
489 arch_styles([craftsman, prairie,
490             first_bay_tradition, second_bay_tradition, sea_ranch,
491             queen_anne, italianate, stick, edwardian,
492             tudor, storybook, mission, spanish_colonial, mediterranean,
493             shingle, colonial, dutch_colonial, neoclassical,
494             english_cottage, french_normandy,
495             monterey, minimal_traditional,
496             ranch, modern_farmhouse, shed_style, neo_eclectic, tuscan,
497             art_deco, streamline_moderne, international,
498             midcentury, eichler, contemporary]).
499
500 /* `ranch` and `farmhouse` appear on BOTH axes, which is not redundancy: a
501    1953 tract ranch is style_ranch AND form_ranch, a 2020 contemporary can be
502    form_ranch without the style, and a ranch-influenced split-level can be
503    style_ranch with a different form. `hacienda` moved here from style — it is
504    a courtyard PLAN, and in California MLS copy the word means almost anything
505    vaguely Spanish and sprawling, so it should carry no stylistic inference. */
506 arch_forms([bungalow, foursquare, ranch, farmhouse, hacienda]).
507
508 arch_parent(craftsman, arts_and_crafts).
509 /* Prairie is NOT a child (reverted 2026-08-27, user). Prairie School developed
510    ALONGSIDE Arts and Crafts and was influenced by it rather than contained by
511    it — historians describe it as paralleling the movement, not belonging to it.
512    Containment would make every Prairie house assert Arts and Crafts, which is
513    a stronger claim than the history supports. The association is recorded as
514    influence instead, which carries no inference. */
515 arch_influence(prairie, arts_and_crafts).
516 arch_related(prairie, craftsman).
517 /* Victorian is an ERA and a family (1837-1901); Queen Anne, Italianate and
518    Stick are subtypes within it, so naming one implies the family. Edwardian is
519    NOT a subtype — it is the following era (1901-1910), post-Victorian and
520    generally plainer, and San Francisco listings treat it as its own category.
521    It therefore has no parent. */
522 /* The Bay Area regional line is three generations, not one. A house in any of

```

```

523     them IS Bay Tradition, so this is genuine containment. */
524 arch_parent(first_bay_tradition, bay_tradition).
525 arch_parent(second_bay_tradition, bay_tradition).
526 arch_parent(sea_ranch, bay_tradition).
527
528 arch_parent(queen_anne, victorian).
529 arch_parent(italianate, victorian).
530 arch_parent(stick, victorian).
531
532 feat(arch(craftsman)) --> [craftsman], not_modifier.
533 feat(arch(arts_and_crafts)) --> [arts,and,crafts].
534 feat(arch(arts_and_crafts)) --> [W,and,crafts], { member(W, [art,arts]) }.
535 feat(form(bungalow)) --> [bungalow].
536 feat(form(bungalow)) --> [bungalows].
537 /* --- the Victorian family --- */
538 feat(arch(victorian)) --> [victorian], not_modifier.
539 feat(arch(queen_anne)) --> [queen,anne]. % asymmetrical, turret,
540 feat(arch(queen_anne)) --> [queen,ann]. % wraparound porch, spindlework
541 feat(arch(italianate)) --> [italianate], not_modifier. % bracketed cornice, tall
    ↪ narrow
542 % windows; very common in SF
543 feat(arch(stick)) --> [stick,eastlake]. % vertical stickwork, squared bays
544 feat(arch(stick)) --> [eastlake].
545 feat(arch(stick)) --> [stick,W], { member(W, [style,victorian]) }.
546 /* a different era, not a Victorian subtype */
547 feat(arch(edwardian)) --> [edwardian], not_modifier.
548
549 feat(arch(tudor)) --> [tudor], not_modifier.
550
551 /* PRAIRIE — Wright-derived, c.1900-1920, contemporaneous with Craftsman:
552    strong horizontals, low-pitched hipped roof, wide overhanging eaves, bands
553    of windows, massive central chimney. Shares much of the Craftsman detailing
554    (deep eaves, built-ins, art glass), which is why the detail flags
555    deliberately infer no style.
556
557    Prairie is INFLUENCED BY arts_and_crafts but not contained by it — see
558    arch_influence/2 above. arch_influence/2 and arch_related/2 are declarative
559    only: nothing consults them, so naming Prairie sets no other flag. They
560    record what is known without letting it become an inference. */
561 feat(arch(prairie)) --> [prairie,W], { member(W, [style,school,home,house,
562    influenced]) }.
563 feat(arch(prairie)) --> [prairie], not_modifier.
564 feat(arch(prairie)) --> [frank,lloyd,wright].
565 feat(arch(prairie)) --> [wright,W], { member(W, [inspired,influenced,designed]) }.
566
567 /* STORYBOOK — 1920s-30s whimsical revival: steeply pitched irregular
568    rooflines, false thatch, turrets, arched plank doors. A real Bay Area and
569    SoCal idiom, sometimes called Storybook Tudor or Hansel-and-Gretel.
570
571    The word is also loose MLS puffery — "storybook charm", "a storybook
572    setting" — meaning merely cute. Those are blocked; a storybook COTTAGE or
573    CHARMER is the style. */
574 feat(arch(shingle)) --> [shingle,W], { member(W, [style,home,house]) }.
575 feat(arch(storybook)) --> [storybook], not_modifier, not_next([perfect,ending]).
576 feat(arch(storybook)) --> [story,book,W], { member(W, [cottage,tudor,home,
577    house,charmer]) }.
578 feat(arch(storybook)) --> [hansel,and,gretel].
579 feat(arch(storybook)) --> [fairytales,W], { member(W, [cottage,tudor,home,house]) }.
580
581 /* --- the Spanish-derived group: siblings, not one flag ---
582    Mission Revival (c.1890-1915) came FIRST and takes its vocabulary from the
583    California missions: curvilinear parapets, arcades, quatrefoil windows.
584    Spanish Colonial Revival (c.1915-1940) is the later and commoner idiom:
585    white stucco, low-pitched red clay tile, arched openings, wrought iron.
586    Mediterranean is broader and more eclectic, usually larger, mixing Italian

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587 and Spanish sources. Hacienda is a PLAN as much as a style — single storey,
588 rambling, arranged around a courtyard.
589
590 Kept as separate siblings with no parent: the boundaries between them are
591 genuinely contested, and inventing an umbrella would assert a taxonomy the
592 trade does not agree on. %% REVIEW if you want one. */
593 feat(arch(mission)) --> [mission,W], { member(W, [style,revival,
594 architecture]) }.
595 /* NOT the bare word `mission`: in the Bay Area it is a district, a street, a
596 school district and several saints before it is a style. */
597 feat(arch(spanish_colonial)) --> [spanish,W], { member(W, [colonial,revival,style,
598 eclectic]) }.
599 /* Bare `spanish` IS usually a style claim ("Spanish charmer", "Spanish villa"),
600 unlike bare `mission`, so it is kept — but blocked where the word is
601 modifying something else: Spanish tile is a roofing material, Spanish oak is
602 a floor, and a Spanish-speaking agent is not a style at all. */
603 feat(arch(spanish_colonial)) --> [spanish], not_modifier.
604
605 /* zero-width lookahead: the next token must not be one of Ws */
606 not_next(Ws, S, S) :- ( S = [T|_] -> \+ memberchk(T, Ws) ; true ).
607
608 /* ----- the style-word modifier guard -----
609 A style word followed by one of these is modifying something that is NOT
610 the house, and asserts nothing about its architecture:
611
612 "Craftsman quality"      workmanship, not a Craftsman house
613 "Colonial doors"        a door profile
614 "Victorian molding"     a moulding profile
615 "Mediterranean climate" the weather
616 "Contemporary living"   marketing
617 "mid-century neighborhood" the neighbourhood, not this house
618 "Eichler neighborhood" ditto — next door to one is not being one
619 "Tudor Drive"           a street
620 "Mission schools"       a school district
621 "Spanish tile"          a roofing material
622
623 One list applied to every bare style word, rather than a separate list per
624 style: the failure mode is generic, so the guard should be too. Words that
625 legitimately FOLLOW a style word — home, house, style, revival, bungalow,
626 cottage, charmer — are deliberately absent. */
627 not_modifier(S, S) :- ( S = [T|_] -> \+ non_house_noun(T) ; true ).
628
629 non_house_noun(W) :-
630     member(W, [ /* attributes of workmanship, not of the house */
631 quality,workmanship,craftsmanship,detail,details,detailing,
632 influence,influences,touches,accents,flair,
633 /* components a style word can qualify */
634 molding,moldings,moulding,trim,millwork,woodwork,
635 door,doors>window,window,cabinet,cabinets,
636 tile,tiles,oak,cedar,glass,fixtures,hardware,
637 /* not the building at all */
638 climate,weather,speaking,
639 living,lifestyle,charm,feel,feeling,vibe,ambiance,ambience,
640 setting,romance,
641 /* somewhere else */
642 neighborhood,neighbourhood,neighbors,neighbours,area,district,
643 school,schools,college,church,mission,park,village,city,town,
644 /* street types */
645 street,st,avenue,ave,road,rd,drive,dr,lane,ln,way,court,ct,
646 place,pl,boulevard,blvd,circle,cir,terrace,ter,creek,view ] ).
647 feat(arch(mediterranean)) --> [mediterranean], not_modifier.
648 feat(form(hacienda)) --> [hacienda], not_modifier.
649 /* bare `colonial` is Colonial Revival — but not when it is the second word of
650 "Spanish colonial", which is a different style handled above, nor of "Dutch
651 colonial", which has its own flag below */

```

```

652 feat(not_after([spanish,dutch], arch(colonial))) --> [colonial], not_modifier.
653
654 /* DUTCH COLONIAL — visually distinctive enough to warrant its own classifier:
655    the gambrel roof, often with a full-width shed dormer, is unmistakable and
656    shares little with the symmetrical Georgian-derived Colonial Revival. */
657 feat(arch(dutch_colonial)) --> [dutch,colonial].
658 feat(arch(dutch_colonial)) --> [gambrel].
659
660 /* NEOCLASSICAL — full-height portico, columns, pediment, symmetry. Grander
661    and more explicitly classical than Colonial Revival, which quotes the
662    classical vocabulary at domestic scale rather than reproducing it. */
663 feat(arch(neoclassical)) --> [W], { member(W, [neoclassical,neoclassic]) }.
664 feat(arch(neoclassical)) --> [neo,classical].
665 feat(arch(neoclassical)) --> [greek,revival].
666
667 /* ENGLISH COTTAGE — kept SEPARATE from Tudor Revival, which it is routinely
668    miscalled. Both are Period Revival, but the cottage is small, asymmetrical,
669    steep-roofed and picturesque, often with a catslide roof over the entry and
670    little or no half-timbering. Many California 1920s-30s Period Revival
671    cottages are described as Tudor when this is the better reading. */
672 feat(arch(english_cottage)) --> [english,W], { member(W, [cottage,country,
673    revival]) }.
674 feat(arch(english_cottage)) --> [cotswold].
675 feat(arch(english_cottage)) --> [W,cottage], { member(W, [storybook,tudor,
676    period,fairytale]) }.
677
678 /* FRENCH NORMANDY / FRENCH REVIVAL — 1920s-30s: steep hipped roofs, a round
679    or polygonal entry turret, brick or stone with stucco. California has
680    substantial numbers of these, and they are commonly mislabelled Tudor. */
681 feat(arch(french_normandy)) --> [french,W], { member(W, [normandy,norman,
682    revival,country,
683    provincial,eclectic]) }.
684 feat(arch(french_normandy)) --> [normandy].
685
686 /* SHED STYLE — c.1960s-80s: multiple shed roofs at odd angles, asymmetrical
687    massing, vertical wood siding, minimal ornament, deliberately site-
688    responsive. Distinct from Sea Ranch, which is its most distinguished
689    expression rather than a synonym. */
690 feat(arch(shed_style)) --> [shed,style].
691 feat(arch(shed_style)) --> [W,sheds], { member(W, [multiple,intersecting]) }.
692
693 /* NEO-ECLECTIC — c.1980s onward suburban work combining historical motifs
694    without committing to one: mixed cladding, prominent garage, applied
695    fragments of several revivals. Far better than calling everything built
696    after 1980 "Contemporary". %% LIMITATION: agents never write the word, so
697    this will effectively only fire on trade or appraisal text. */
698 feat(arch(neo_eclectic)) --> [neo,eclectic].
699 feat(arch(neo_eclectic)) --> [neoelectic].
700
701 /* TUSCAN — the 1990s-2000s California tract idiom: heavy stucco, arches,
702    stacked stone veneer, faux-aged finishes. Recorded as its own flag rather
703    than folded into `mediterranean` because it is a distinct market period
704    with a distinct — and now often negative — buyer reaction. */
705 feat(arch(tuscan)) --> [tuscan].
706 feat(arch(tuscan)) --> [W,tuscan], { member(W, [old,italian]) }.
707 feat(form(ranch)) --> [rancher].
708 /* RANCH — a recognised architectural tradition AND a physical shape.
709    Cliff May, the California ranch, the western and suburban ranch are a style;
710    long, low and single-storey is a form. Both are emitted, and a house can
711    have either without the other.
712
713    Bare `ranch` gives the FORM. It carries the shared modifier guard (which
714    blocks "ranch lifestyle") plus a lookbehind for the working-property senses:
715    a horse ranch is not a ranch house, and Sea Ranch is neither. */
716 ranch_not_after([sea,horse,working,cattle,guest,dude,equestrian]).

```

```

717
718 /* one rule for the form: bare `ranch`, with the shared modifier guard (which
719    blocks "ranch lifestyle") and the lookbehind list above. "ranch style" and
720    "ranch home" reach it too, since neither following word is a non-house
721    noun. */
722 feat(not_after([sea,horse,working,cattle,guest,dude,equestrian], form(ranch)))
723     --> [ranch], not_modifier.
724
725 feat(not_after([sea], arch(ranch))) --> [ranch,style].
726 feat(arch(ranch)) --> [W,ranch], { member(W, [california,western,
727     suburban]) }.
728 feat(arch(ranch)) --> [cliff,may].
729 /* MONTEREY — uniquely Californian, and two things sharing a name.
730    The historic Monterey Colonial (1830s-40s) is a hybrid: Spanish/Mexican
731    adobe construction with Anglo-American and New England elements, the Larkin
732    House in Monterey being the prototype. The Monterey Revival (1920s-40s) is
733    the later commercial style — two storeys, stucco, tile roof, and the
734    defining cantilevered second-storey balcony running the facade, with
735    Spanish Colonial detail mixed into Anglo-American form.
736
737    One flag for both: MLS copy almost never distinguishes them, and a listing
738    saying "Monterey" in California means the revival in nearly every case.
739    %% REVIEW if you want monterey_colonial and monterey_revival separately. */
740 feat(arch(monterey)) --> [monterey,W], { member(W, [colonial,revival,style]) }.
741 /* Monterey is a city, a bay, a county and a peninsula before it is a style,
742    and those place words cannot go in the shared non_house_noun list: "bay"
743    there would block "Victorian bay window", which is a Victorian. */
744 feat(arch(monterey)) --> [monterey], not_modifier,
745     not_next([bay,county,peninsula,harbor,harbour,
746     marina,aquarium,pines,pier,wharf,
747     cypress,carmel,salinas]).
748
749 /* MINIMAL TRADITIONAL — c.1935-1950: compact, one storey, low to moderate
750    roof pitch, almost no ornament, often a vestigial front-facing gable. The
751    precursor to the mass postwar Ranch, and California has enormous numbers of
752    them.
753
754    %% LIMITATION: this is a preservation/architectural-historian term. Agents
755    do NOT write it — they write "starter home", "1940s cottage", "wartime
756    bungalow" — so this flag will rarely fire from remarks alone. It is far
757    better derived from structured data (year_built c.1935-1950 + small
758    footprint + single storey) than from text. Included so the vocabulary
759    exists when the term IS used, not because remarks will supply it. */
760 feat(arch(minimal_traditional)) --> [minimal,traditional].
761 feat(arch(minimal_traditional)) --> [minimal,W], { member(W, [traditional,
762     traditionalist]) }.
763
764 /* ART DECO (1920s-30s) — geometric, vertical emphasis, zigzag and chevron
765    ornament, stepped massing. STREAMLINE MODERNE (1930s-40s) is its horizontal
766    successor: curved corners, glass block, porthole windows, flat roofs, ship
767    railings. Both are more common in California multifamily and commercial than
768    single-family, but the residential stock is real, particularly in SF,
769    Oakland and Alameda. Kept separate because the two look nothing alike. */
770 feat(arch(art_deco)) --> [art,deco].
771 feat(arch(art_deco)) --> [deco], not_modifier.
772 feat(arch(streamline_moderne)) --> [streamline,W], { member(W, [moderne,modern]) }.
773 feat(arch(streamline_moderne)) --> [moderne].
774
775 /* INTERNATIONAL STYLE — the 1920s-40s European modernism that reached
776    California through Neutra, Schindler and their followers: flat roof, smooth
777    unornamented wall plane, ribbon windows, cantilevers, no regional material
778    reference. Distinguished from `midcentury`, which is the later, softer,
779    more domestic American development, and from the Bay Tradition, which is
780    regionalist and wood-led where this is deliberately placeless. */
781 feat(arch(international)) --> [international,W], { member(W, [style,modern,

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782                                     modernism])) }.
783 feat(arch(international)) --> [W], { member(W, [neutra,schindler]) }.
784
785 feat(arch(midcentury)) --> [W], { member(W, [midcentury,mcm]) }, not_modifier.
786 feat(arch(midcentury)) --> [mid,century], not_modifier.
787
788 /* EICHLER — Joseph Eichler's tract modernism, c.1949-1974: post-and-beam,
789 floor-to-ceiling glass, atrium entry, flat or low-gable roof, radiant slab.
790 Strictly a BUILDER rather than a style, but the trade uses it as a style
791 designation and it carries a measurable premium in Palo Alto, Sunnyvale,
792 San Rafael and Walnut Creek.
793
794 Moved here from mls_remarks_bayarea.pl, which guarded it on bayarea_ctx: an
795 Eichler is an Eichler wherever it stands, and there are tracts outside the
796 nine counties. Same test as Craftsman — the meaning does not shift with the
797 market, only the frequency. %% REVIEW: `likeness` cues ("Eichler-inspired",
798 "in the manner of") are deliberately included, since the trade uses them and
799 they carry some of the premium; drop them if you want the name only. */
800 feat(arch(eichler)) --> [eichler], not_modifier.
801 feat(arch(eichler)) --> [eichlers], not_modifier.
802 feat(arch(eichler)) --> [W,eichler], { member(W, [classic,original,
803                                     authentic]) }.
804
805 /* ----- the Bay Area regional line -----
806 Three generations, previously collapsed into one `bay_region` flag. They
807 share a regionalism — unpainted redwood or cedar, informal plans that follow
808 the site rather than a style book — but they are half a century apart and
809 built by different people for different clients.
810
811 FIRST BAY TRADITION (c.1890-1920) — Maybeck, Coxhead, Willis Polk, some of
812 Julia Morgan. Closely tied to Arts and Crafts and the Shingle style;
813 vernacular building adapted to landscape. Berkeley and the Oakland hills.
814
815 SECOND BAY TRADITION (c.1930s-1960s) — Wurster, Gardner Dailey, Esherick.
816 Simpler, regional, wood-oriented modernism. This is the one usually meant by
817 the bare phrase "Bay Region style".
818
819 SEA RANCH (c.1960s onward) — Esherick and MLTW (Moore, Lyndon, Turnbull,
820 Whitaker), with Halprin's landscape plan. Inherits the regionalism but is
821 not synonymous with the Second Tradition.
822
823 All three are distinct from `midcentury`: regionalist and material-led
824 rather than International-derived, and usually one-off architect work rather
825 than tract.
826
827 %% REVIEW the cue lists. Architect surnames are the strongest signal but
828 several are also ordinary names or places — `polk` is a major San Francisco
829 street, `moore` and `turnbull` are common surnames — so those need a
830 forename. This line is also more often DESCRIBED than named, so the cues
831 below will under-fire. */
832 feat(arch(bay_tradition)) --> [bay,W], { member(W, [region,regional,
833                                     tradition]) }.
834
835 feat(arch(first_bay_tradition)) --> [first,bay,tradition].
836 feat(arch(first_bay_tradition)) --> [W], { member(W, [maybeck,coxhead]) }.
837 feat(arch(first_bay_tradition)) --> [willis,polk].
838
839 feat(arch(second_bay_tradition)) --> [second,bay,tradition].
840 feat(arch(second_bay_tradition)) --> [W], { member(W, [wurster,esherick]) }.
841 feat(arch(second_bay_tradition)) --> [gardner,dailey].
842
843 feat(arch(sea_ranch)) --> [sea,ranch].
844 feat(arch(sea_ranch)) --> [mltw].
845 feat(arch(sea_ranch)) --> [charles,moore].
846 feat(arch(sea_ranch)) --> [william,turnbull].

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```

847 feat(arch(sea_ranch))          --> [third,bay,tradition].
848 /* `farmhouse` alone is a form — the rural vernacular shape. MODERN FARMHOUSE
849    is a genuine contemporary style vocabulary and a different thing: board and
850    batten siding, standing-seam metal roof, black-framed windows, large simple
851    gables, stripped-down vernacular massing. A 1900 farmhouse is the form
852    without the style; a 2021 build is usually the style without ever having
853    been a farm. */
854 feat(form(farmhouse))          --> [farmhouse].
855 feat(arch(modern_farmhouse)) --> [W,farmhouse], { member(W, [modern,
856                                     contemporary]) }.
857
858 /* FOURSQUARE — American Foursquare, c.1895-1930: a boxy two-storey cube, low
859    hipped roof with a central dormer, full-width porch, four rooms to a floor.
860    A FORM, like bungalow — it was built in Craftsman, Prairie, Colonial Revival
861    and plain vernacular dress, so it implies no style. */
862 feat(form(foursquare))        --> [foursquare].
863 feat(form(foursquare))        --> [four,square].
864 feat(form(foursquare))        --> [W,foursquare], { member(W, [american,classic]) }.
865 /* CONTEMPORARY is TEMPORALLY RELATIVE, and the definition must say so: it
866    means the architectural vocabulary current when the house was built, not
867    present-day. A 1975 California house is properly Contemporary and does not
868    stop being so as the decades pass. Characterised by simplified forms, large
869    glazing, unconventional roof geometry, open plans and little applied
870    ornament — but it may still borrow historical references, so "no historical
871    vocabulary" was too strict a reading. */
872 feat(arch(contemporary))      --> [W], { member(W, [contemporary,modernist]) },
873    not_modifier.
874
875 /* ----- Architectural detailing -----
876    Agents describe the FEATURES and often never name the style: "built-ins,
877    box beam ceilings, exposed rafters" says Craftsman without saying Craftsman.
878    These are the visible-craftsmanship markers — exposed structure, natural
879    materials, built-in joinery, deep eaves, tapered porch columns.
880
881    Emitted as their own flags and NOT used to infer arch(craftsman): several
882    appear on Shingle, Prairie and Tudor Revival houses too, and a Bay Area
883    house from 1900-1930 is frequently Craftsman with elements of Shingle,
884    Tudor Revival, Mission or Colonial Revival mixed in. Style BLENDING is the
885    norm in that stock, so several style flags firing together is the correct
886    reading, not a defect. Let the model weigh feature flags and style flags
887    together rather than having the grammar collapse them.
888    %% REVIEW the vocabulary. */
889 /* Selected for DISCRIMINATING power, not for completeness. A detail earns a
890    flag when its presence distinguishes one style from another; `stucco`,
891    `hipped roof` and `low-pitched roof` were proposed and rejected, because
892    they appear on almost everything in California and would add noise rather
893    than signal. `bay_window` is borderline — near-universal on San Francisco
894    Victorians and Edwardians, absent on ranches — and is kept for that
895    contrast. %% REVIEW it if it proves too common to be worth a column. */
896 arch_details([ /* Arts and Crafts / Craftsman */
897    exposed_rafters, box_beams, built_ins, tapered_columns,
898    deep_eaves, knee_braces, river_rock, stone_piers,
899    divided_light, art_glass, wainscoting, window_seat,
900    /* Victorian */
901    turret, fishscale_shingles, spindlework, bracketed_cornice,
902    wraparound_porch, bay_window, pocket_doors, mansard_roof,
903    /* Tudor / storybook */
904    half_timbering,
905    /* Spanish / Mission / Monterey */
906    clay_tile_roof, mission_parapet, arcade, arched_openings,
907    wrought_iron, courtyard, second_story_balcony, adobe,
908    /* Modern: Eichler, midcentury, Prairie, International */
909    post_and_beam, atrium, floor_to_ceiling_glass, clerestory,
910    radiant_slab, band_windows, glass_block,
911    /* siding and roof shapes that discriminate */

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912         board_and_batten, shingle_siding, shed_roof, porte_cochere,
913         gable_roof, hipped_roof, gambrel_roof, catslide_roof ]]).
914
915 feat(det(exposed_rafters)) --> [exposed,W], { member(W, [rafters,rafter,beams,
916                                     beam,brackets,trusses]) }.
917 feat(det(exposed_rafters)) --> [rafter,tails].
918 feat(det(box_beams)) --> [box,W], { member(W, [beam,beams,beamed]) }.
919 feat(det(box_beams)) --> [coffered,W], { member(W, [ceiling,ceilings]) }.
920 feat(det(box_beams)) --> [beamed,W], { member(W, [ceiling,ceilings]) }.
921 feat(det(built_ins)) --> [joined,W], { member(W, [builtin,builtins]) }.
922 feat(det(built_ins)) --> [built,W], { member(W, [ins,in]) }.
923 feat(det(built_ins)) --> [built,in,W], { member(W, [cabinetry,cabinets,
924                                     bookcases,buffer,hutch]) }.
925 feat(det(tapered_columns)) --> [tapered,W], { member(W, [columns,column,posts,post]) }.
926 feat(det(tapered_columns)) --> [W,columns], { member(W, [square,battered,porch]) }.
927 feat(det(deep_eaves)) --> [W,eaves], { member(W, [deep,wide,broad,overhanging,
928                                     generous]) }.
929 feat(det(deep_eaves)) --> [eave,W], { member(W, [brackets,overhang]) }.
930 feat(det(divided_light)) --> [divided,W], { member(W, [light,lights,lite,lites]) }.
931 /* `paned` as well as `pane`: "multi-paned windows" is the commoner phrasing
932    and tokenizes as [multi, paned, windows] */
933 feat(det(divided_light)) --> [W,X,Y], { member(W, [multi,six,eight,nine,ten,
934                                     twelve,true,divided]),
935                                     member(X, [pane,paned,panes]),
936                                     member(Y, [windows>window,sash]) }.
937 feat(det(divided_light)) --> [W,X], { member(W, [multi,six,eight,nine,twelve]),
938                                     member(X, [pane,paned,panes]) }.
939 /* ORNAMENTED WINDOWS — decorative glass, as distinct from divided_light,
940    which is geometry (small panes in muntins) rather than ornament. In
941    Craftsman work the art glass is typically in the UPPER sash over a plain
942    lower one; in Victorian it is more often a stair or entry window. Kept
943    separate from divided_light because a window can have either, both or
944    neither, and the two are evidence of somewhat different things. */
945 feat(det(art_glass)) --> [W,glass], { member(W, [art,leaded,stained,
946                                     beveled,bevelled,
947                                     textured,antique]) }.
948 feat(det(art_glass)) --> [W>window], { member(W, [leaded,stained,art]) }.
949 feat(det(art_glass)) --> [W>windows], { member(W, [leaded,stained,art]) }.
950 feat(det(art_glass)) --> [diamond,W], { member(W, [pane,paned,panes]) }.
951
952 feat(det(wainscoting)) --> [joined,W], { member(W, [wainscoting>wainscot,
953                                     paneling,panelling]) }.
954 feat(det(wainscoting)) --> [picture,rail].
955 feat(det(wainscoting)) --> [plate,rail].
956 feat(det(window_seat)) --> [window,W], { member(W, [seat,seats]) }.
957 feat(det(window_seat)) --> [inglenook].
958
959 /* Not a Craftsman detail — Spanish/Mission — which is why this group is named
960    for architectural detailing generally rather than for one style. It exists
961    so "Spanish tile roof" records the evidence without ASSERTING the style:
962    the phrase is good evidence of Spanish Colonial, but `spanish` there is
963    modifying a roofing material, so the style flag is deliberately suppressed
964    (see not_next/3 above). The flag stands on its own and the model can weigh
965    it alongside the style flags. */
966 feat(det(clay_tile_roof)) --> [W,tile], { member(W, [clay,spanish,barrel,
967                                     mission,terracotta]) }.
968 feat(det(clay_tile_roof)) --> [terra,cotta,W], { member(W, [tile,tiles,roof]) }.
969 feat(det(clay_tile_roof)) --> [tile,roof].
970 feat(det(clay_tile_roof)) --> [tiled,roof].
971
972 /* --- Arts and Crafts / Craftsman --- */
973 feat(det(knee_braces)) --> [knee,W], { member(W, [brace,braces]) }.
974 feat(det(river_rock)) --> [river,W], { member(W, [rock,rocks,stone]) }.
975 feat(det(river_rock)) --> [clinker,W], { member(W, [brick,bricks]) }.
976 feat(det(stone_piers)) --> [W,piers], { member(W, [stone,brick,porch,

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977                                     masonry,rock]] }.
978 feat(det(stone_piers))      --> [W,pillars], { member(W, [stone,brick,tapered]) }.
979
980 /* --- Victorian --- */
981 feat(det(turret))           --> [W], { member(W, [turret,turrets,tower]) }.
982 feat(det(fishscale_shingles))--> joined(W, { member(W, [fishscale,fishscales]) }.
983 feat(det(fishscale_shingles))--> [fish,scale].
984 feat(det(fishscale_shingles))--> [W,shingles], { member(W, [scalloped,patterned,
985                                     decorative]) }.
986 feat(det(spindlework))      --> joined(W, { member(W, [spindlework,spindles,
987                                     gingerbread]) }.
988 feat(det(bracketed_cornice))--> [W,cornice], { member(W, [bracketed,ornate,
989                                     decorative,deep]) }.
990 feat(det(bracketed_cornice))--> [corbel].
991 feat(det(bracketed_cornice))--> [corbels].
992 feat(det(wraparound_porch)) --> joined(W, { member(W, [wraparound,wrap]) },
993 [porch].
994 feat(det(wraparound_porch)) --> [wrap,around,porch].
995 feat(det(bay_window))       --> [bay,W], { member(W, [window,windows]) }.
996 feat(det(pocket_doors))     --> [pocket,W], { member(W, [door,doors]) }.
997 feat(det(gable_roof))       --> [W,roof], { member(W, [gable,gabled]) }.
998 feat(det(gable_roof))       --> [W,gable], { member(W,
999   ↪ [front,cross,side,steep,steeply,pitched]) }.
1000 feat(det(hipped_roof))      --> [W,roof], { member(W, [hip,hipped]) }.
1001 feat(det(gambrel_roof))     --> [gambrel].
1002 feat(det(gambrel_roof))     --> [barn,W], { member(W, [roof,style,roofline]) }.
1003 feat(det(catslide_roof))    --> [catslide].
1004 feat(det(catslide_roof))    --> [cat,slide].
1005 feat(det(catslide_roof))    --> [W,X,roof], { member(W, [sweeping,swept]), member(X,
1006   ↪ [low,down]) }.
1007 feat(det(mansard_roof))     --> [mansard].
1008
1009 /* --- Tudor / storybook --- */
1010 feat(det(half_timbering))    --> joined(W, { member(W, [halftimbering,
1011                                     halftimbered]) }.
1012 feat(det(half_timbering))    --> [half,W], { member(W, [timbering,timbered,
1013                                     timber]) }.
1014
1015 /* --- Spanish / Mission / Monterey --- */
1016 feat(det(mission_parapet))  --> [W,parapet], { member(W, [mission,curvilinear,
1017                                     shaped,espadana]) }.
1018 feat(det(mission_parapet))  --> [bell,W], { member(W, [tower,gable]) }.
1019 feat(det(arcade))           --> [W], { member(W, [arcade,arcaded,loggia,
1020                                     colonnade]) }, not_modifier.
1021 feat(det(arched_openings))  --> [arched,W], { member(W, [openings,opening,
1022                                     doorway,doorways,
1023                                     entry,windows>window,
1024                                     passageway]) }.
1025 feat(det(arched_openings))  --> [W,arches], { member(W, [interior,graceful,
1026                                     romanesque,rounded]) }.
1027 feat(det(wrought_iron))     --> [wrought,iron].
1028 feat(det(courtyard))        --> [courtyard].
1029 feat(det(courtyard))        --> [court,yard].
1030 feat(det(second_story_balcony))--> [W,balcony], { member(W, [second,cantilevered,
1031                                     upper,full,covered]) }.
1032 feat(det(second_story_balcony))--> [second,story,W], { member(W, [balcony,
1033                                     porch]) }.
1034 /* Adobe is also a creek, a road and a software company in this market */
1035 feat(det(adobe))            --> [adobe], not_modifier,
1036                               not_next([creek,road,rd,street,st,systems,
1037                               acrobat,reader]).
1038
1039 /* --- Modern: Eichler, midcentury, Prairie, International --- */
1040 feat(det(post_and_beam))     --> [post,and,beam].
1041 feat(det(post_and_beam))     --> [W,beam], { member(W, [exposed,structural,

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1040                                     glulam]) }.
1041 feat(det(atrium))          --> [atrium].
1042 feat(det(atrium))          --> [atriums].
1043 feat(det(floor_to_ceiling_glass))--> [floor,to,ceiling,W], { member(W, [glass,
1044                                     windows>window]) }.
1045 feat(det(floor_to_ceiling_glass))--> [wall,of,glass].
1046 feat(det(floor_to_ceiling_glass))--> [walls,of,glass].
1047 feat(det(clerestory))      --> joined(W, { member(W, [clerestory,clearstory,
1048                                     clerestories]) }.
1049 feat(det(radiant_slab))     --> [radiant,W], { member(W, [heat,heating,floor,
1050                                     floors,slab]) }.
1051 feat(det(band_windows))     --> [W,windows], { member(W, [ribbon,banded,
1052                                     continuous]) }.
1053 feat(det(band_windows))     --> [bands,of,windows].
1054 feat(det(glass_block))      --> [glass,W], { member(W, [block,blocks]) }.
1055
1056 /* --- siding and roof shapes that discriminate --- */
1057 feat(det(board_and_batten)) --> [board,and,batten].
1058 feat(det(shingle_siding))   --> [W,shingles], { member(W, [cedar,wood,redwood,
1059                                     shake]) }.
1060 feat(det(shingle_siding))   --> [shingle,W], { member(W, [siding,clad,exterior]) }.
1061 feat(det(shed_roof))        --> [shed,W], { member(W, [roof,roofs,roofline,
1062                                     rooflines]) }.
1063 feat(det(porte_cochere))     --> [porte,cochere].
1064
1065 det_features(Raw, Feats) :-
1066     arch_details(Ds),
1067     findall(Key-Val,
1068         ( member(D, Ds), atom_concat(detail_, D, Key),
1069           bool(memberchk(det(D), Raw), Val) ),
1070         Feats).
1071
1072 /* a style is present if its cue fired OR a cue for one of its children did */
1073 arch_present(Raw, A) :- memberchk(arch(A), Raw), !.
1074 arch_present(Raw, A) :- arch_parent(Child, A), memberchk(arch(Child), Raw).
1075
1076 arch_features(Raw, Feats) :-
1077     arch_movements(Ms),
1078     findall(Key-Val,
1079         ( member(M, Ms), atom_concat(movement_, M, Key),
1080           bool(arch_present(Raw, M), Val) ),
1081     MFeats),
1082     arch_styles(As),
1083     findall(Key-Val,
1084         ( member(A, As), atom_concat(style_, A, Key),
1085           bool(arch_present(Raw, A), Val) ),
1086     SFeats0),
1087     append(MFeats, SFeats0, SFeats),
1088     arch_forms(Fs),
1089     findall(Key-Val,
1090         ( member(Fm, Fs), atom_concat(form_, Fm, Key),
1091           bool(memberchk(form(Fm), Raw), Val) ),
1092     FFeats),
1093     append(SFeats, FFeats, Feats).

```