

Overlap Studies 重叠指标

MA Moving average 移动平均线

real = MA(close, timeperiod=30, matype=0)

SMA Simple Moving Average 简单移动平均线

real = SMA(close, timeperiod=30)

EMA Exponential Moving Average 指数移动平均线

real = EMA(close, timeperiod=30)

WMA Weighted Moving Average 加权移动平均数

real = WMA(close, timeperiod=30)

DEMA Double Exponential Moving Average 双指数移动平均线

real = DEMA(close, timeperiod=30)

TEMA Triple Exponential Moving Average 三指数移动平均线

real = TEMA(close, timeperiod=30)

TRIMA Triangular Moving Average 三角形加权法

real = TRIMA(close, timeperiod=30)

KAMA Kaufman Adaptive Moving Average 考夫曼自适应移动平均线

real = KAMA(close, timeperiod=30)

MAMA MESA Adaptive Moving Average MESA 自适应移动平均

mama, fama = MAMA(close, fastlimit=0, slowlimit=0)

T3 Triple Exponential Moving Average (T3) 三指数移动平均线(T3)

real = T3(close, timeperiod=5, vfactor=0)

MAVP Moving average with variable period 变周期移动平均线

real = MAVP(close, periods, minperiod=2, maxperiod=30, matype=0)

- $SMA(c, N) = \frac{\sum_{i=1}^N c_i}{N}$
- $EMA_t = c_t \times K + EMA_{t-1} \times (1 - K), K = \frac{2}{N+1}$
- $WMA(c, N) = \frac{\sum_{i=1}^N c_i \times i}{1+2+\dots+N}$
- $DEMA = 2 \times EMA_t - EMA(EMA_t)$
- $TEMA = 3 \times EMA_t - 3 \times EMA(EMA_t) + EMA(EMA(EMA_t))$
- $TRIMA = \frac{\sum_{j=t-N+1}^t SMA_j}{N}$
- $KAMA_t = KAMA_{t-1} + sc_t \times c_t - KAMA_{t-1}, sc_t = (ER_t \times (fastest - slowest) + slowest)^2$
 $fastest = \frac{2}{fastest\ MA\ period+1}$ $slowest = \frac{2}{slowest\ MA\ period+1}$ $ER_t = \frac{|c_t - c_{t-n}|}{\sum_{i=t-n}^{t-1} |c_t - c_{t-1}|}$
- $\begin{cases} T_1 = EMA(C, N) \times (1 + VA) - EMA(EMA(C, N), N) \times VA \\ T_2 = EMA(T_1, N) \times (1 + VA) - EMA(EMA(T_1, N), N) \times VA \\ T_3 = EMA(T_2, N) \times (1 + VA) - EMA(EMA(T_2, N), N) \times VA \end{cases}$
- $MAVP_t = VI \times K \times c_t + (1 - VI \times K) \times MAVP_{t-1}, K = \frac{2}{N+1}, VI = Volatility\ Index = \left| \frac{S_u - S_d}{S_u + S_d} \right|$

S_u (Sum Up): Sum of difference between c_t and previous closes c_i on days with a positive price movement within the period

S_d (Sum Down): Sum of difference between c_t and previous closes c_i on days with a negative price movement within the period

- *MA_SMA, MA_EMA, MA_WMA, MA_DEMA, MA_TEMA, MA_TRIMA, MA_KAMA, MA_MAMA, MA_T3 = range(9)*

BBANDS

Bollinger Bands **布林线**

upperband, middleband, lowerband = BBANDS(close, timeperiod=5, nbdevup=2, nbdevdn=2, matype=0)

中轨道 = 过去 N 日内 SMA(或者其他 MA)

通道上界 = 中轨道 + n*过去 N 日的标准差

通道下界 = 中轨道 - n*过去 N 日的标准差

逻辑策略：当股价波动较大时，布林带通道带宽越大。反之当股价波动幅度较小时，布林带带宽则会相应变窄。上穿通道做空，下穿通道做多

MIDPOINT

MidPoint over period **中点**

real = MIDPOINT(close, timeperiod=14)

MIDPRICE

Midpoint Price over period **中点价格**

real = MIDPRICE(high, low, timeperiod=14)

SAR

Parabolic SAR(Stop and Reverse)**抛物线转向**

real = SAR(high, low, acceleration=0, maximum=0)

SAREXT

Parabolic SAR – Extended **增强型抛物线转向(更多参数)**

real = SAREXT(high, low, startvalue=0, offsetonreverse=0, accelerationinitlong=0, accelerationlong=0, accelerationmaxlong=0, accelerationinitshort=0, accelerationshort=0, accelerationmaxshort=0)

Rising SAR

Prior SAR: The SAR value for the previous period.

Extreme Point (EP): The highest high of the current uptrend.

Acceleration Factor (AF): Starting at .02, AF increases by .02 each time the extreme point makes a new high. AF can reach a maximum of .20, no matter how long the uptrend extends.

Current SAR = Prior SAR + Prior AF*(Prior EP - Prior SAR)

Note however that SAR can never be above the prior two periods' lows. Should SAR be above one of those lows, use the lowest of the two for SAR.

Falling SAR

Prior SAR: The SAR value for the previous period.

Extreme Point (EP): The lowest low of the current downtrend.

Acceleration Factor (AF): Starting at .02, AF increases by .02 each time the extreme point makes a new low. AF can reach a maximum of .20, no matter how long the downtrend extends.

Current SAR = Prior SAR - Prior AF*(Prior SAR - Prior EP)

Note however that SAR can never be below the prior two periods' highs. Should SAR be below one of those highs, use the highest of the two for SAR.

Momentum Indicators 动量指标

PLUS_DI Plus Directional Indicator 正向指标 $PDI_t(+DI)$

real = PLUS_DI(high, low, close, timeperiod=14)

PLUS_DM Plus Directional Movement 定向运动 DMP_t

real = PLUS_DM(high, low, timeperiod=14)

MINUS_DI Minus Directional Indicator 负向指标 $MDI_t(-DI)$

real = MINUS_DI(high, low, close, timeperiod=14)

MINUS_DM Minus Directional Movement 负向运动 MDI_t

real = MINUS_DM(high, low, timeperiod=14)

DX Directional Movement Index 动向指数 DMI

real = DX(high, low, close, timeperiod=14)

ADX Average Directional Movement Index 平均趋向指数 ADX

real = ADX(high, low, close, timeperiod=14)

ADXR Average Directional Movement Index Rating 评估指数 $ADXR$

real = ADXR(high, low, close, timeperiod=14)

$$\begin{aligned} HD_t &= H_t - H_{t-1} \quad LD_t = L_t - L_{t-1} \\ DMP_t &= \frac{1}{n} \sum_{i=t-n+1}^t 1_{(HD_i > 0 \& HD_i > LD_i)} HD_i \quad DMM_t = \frac{1}{n} \sum_{i=t-n+1}^t 1_{(LD_i > 0 \& LD_i > HD_i)} LD_i \\ PDI_t(+DI) &= DMP_t \times \frac{100}{TR_t} \quad MDI_t(-DI) = DMM_t \times \frac{100}{TR_t} \\ DMI &= \text{abs}\left(\frac{MDI_t - PDI_t}{MDI_t + PDI_t}\right) \times 100 \\ ADX_t(m, n) &= MA_t(DMI, m) = MA_t\left(\text{abs}\left(\frac{MDI_t - PDI_t}{MDI_t + PDI_t}\right) \times 100, m\right) \\ ADXR &= \frac{ADX_t + REF(ADX, M)}{2} \quad \text{当日 ADX 和 M 日前的 ADX 平均} \end{aligned}$$

逻辑策略： ADX 或者 ATR 指标判断盘整、振荡和单边趋势。ADX 指数是反映趋向变动的程度，而不是方向的本身。进场与出场是采用+DI14 与 -DI14 的穿越信号。当 DI 发生穿越信号时，取当天的极端点做为止损点；换言之，多头头寸取当天的低价为止损点，空头头寸取当天的高价。在随后的几天之内，如果止损点未被触及，即使 DI 再发生穿越信号也不需理会。当 ADX 的位置高于两条 DI 而方向发生改变，这是趋势反转的早期信号，可以做部份的获利了结。最后的平仓信号是来自于 DI 穿越或极端点的止损被引发。当 ADX 改变方向时，如果+DI14 高于 -DI14，这代表趋势的变动是由上亦下，反之亦然。如果 ADX 高于两条 DI，而且读数明显偏高，这代表既有的趋势已经持续一段时间。这并不是建立新头寸的理想时机，因场信号很可能反复。换言之，ADX 的读数偏高，相当于是超买/超卖，顺势的新交易头寸通常很难获利。如果 ADX 同时低于两条 DI，避免采用顺势交易的系统，因为市场中没有明显的趋势。如果 ADX 的读数低于 20~25，不论它与两条 DI 的相对位置如何，都避免采用顺势交易的系统，因为市场中没有明显的趋势。通常情况下可以简单理解为：ADX 线代表力量的强弱，+DI 和 -DI 谁占优势随着力量一起上扬，那么就代表走势向哪个方向发展。

AROON Aroon 阿隆指标

aroondown, aroonup = AROON(high, low, timeperiod=14)

AROONOSC Aroon Oscillator 阿隆震荡线

real = AROONOSC(high, low, timeperiod=14)

$$\text{Aroon Up} = \frac{N - HH}{N} \times 100$$

$$\text{Aroon Down} = \frac{N - LL}{N} \times 100$$

$$\text{Aroon Osc} = \text{Aroon Up} - \text{Aroon Down}$$

其中 N=timeperiod HH:在此期间出现最高价后的天数 LL:在此期间出现最低价的天数

逻辑策略：极值 0 与 100 当 Up 线达到 100 时，市场处于多头强势；如果维持在 70~100 之间，表示处于多头上升趋势；同样，如果 Down 线达到 100 时，市场处于空头强势；如果维持在 70~100 之间，表示处于空头下降趋势。当 Up 线达到 0 时，表示多头处于极弱势，如果维持在 0~30 之间，表明多头处于较弱势；当 Down 线达到 0 时，表示空头处于极弱势，如果维持在 0~30 之间，表明空头处于较弱势。如果两条线同处于底部，表示处于盘整时期，无趋势。**平行运动** 如果两条线平行运动时，表明市场原有趋势仍在继续，只到由极值水平或交叉穿行而改变市场方向为止。**交叉穿行** 当下行线上穿上行线时，表明原有趋势逐渐减弱，预计趋势将开始反转。反之亦然。

BOP Balance Of Power 均势指标

real = BOP(open, high, low, close)

$$\text{BOP} = \frac{\text{Close} - \text{Open}}{\text{High} - \text{Low}}$$

逻辑策略：BOP 上穿 0 轴买入，下穿 0 轴卖出。通常采用其值的 14 日 SMA。

CCI Commodity Channel Index 顺势指标

real = CCI(high, low, close, timeperiod=14)

$$\text{TP} = (\text{H} + \text{L} + \text{C})/3$$

$$\text{SMATP} = \text{SMA}_N(\text{TP})$$

$$\text{Mean Deviation} = \frac{\sum_{i=1}^N |\text{SMATP}_i - \text{TP}_i|}{N}$$

$$\text{CCI} = (\text{TP} - \text{SMATP}) / (0.015 \times \text{Mean Deviation})$$

$$N = 20$$

逻辑策略：CCI<-100 超卖,CCI>100 超买。类似于 RSI 的操作方法。

CMO Chande Momentum Oscillator 钱德动量摆动指标

real = CMO(close, timeperiod=14)

$$\text{CMO} = 100 \times \frac{\text{Up} - \text{Down}}{\text{Up} + \text{Down}}$$

Up is the sum of positive changes over specified period (bar period)

Down is the sum of negative changes over specified period (bar period)

逻辑策略：上穿 0 轴做多，下穿 0 轴做空。 -50, 50 为超卖超买线。

MACD Moving Average Convergence/Divergence 移动平均收敛/散度

dif, dea, macd = MACD(close, fastperiod=12, slowperiod=26, signalperiod=9)

MACDEXT MACD with controllable MA type 带可控 MA 类型的 MACD

macd, macdsignal, macdhist = MACDEXT(close, fastperiod=12, fastmatype=0, slowperiod=26, slowmatype=0, signalperiod=9, signalmatype=0)

MACDFIX Moving Average Convergence/Divergence Fix 12/26 固定参数的 MACD

macd, macdsignal, macdhist = MACDFIX(close, signalperiod=9)

短期 EMA：短期 SHORT(12 日)的收盘价指数移动平均值

长期 EMA：长期 LONG(26 日)的收盘价指数移动平均值

DIF 线 (Difference)：短期 EMA-长期 EMA

DEA 线 (Difference Exponential Average): DIF 线的 M (9)日指数平滑移动平均线

MACD 线：DIF-DEA

其中:

短期 EMA 平滑系数:2/(SHORT+1) 长期 EMA 平滑系数:2/(LONG+1) DEA 线平滑系数:2/(M+1)

逻辑策略：注意不仅需要关注 DIF,DEA 的相对位置，还需关注两者的绝对位置和趋势，零上买入较强，零下卖出较强。MACD 是一个长期趋势的投资技术工具，需和 KD 及 RSI 一起配合使用。**1.**MACD 由负转正（DIF 从下而上穿过 DEA），且 DIF,DEA 为正，买入；由正转负（DIF 从上往下穿过 DEA），且 DIF,DEA 为负，卖出。MACD 以大角度变化，表明市场大趋势的转变。**2.** 零上双金叉：DIF 和 DEA 都在 0 上方，DIF 先上穿 DEA 后跌倒 DEA 下方，然后 DIF 再次上穿 DEA，此时买入**3. 买点**：DIF 由下往上突破 MACD 时；但若此时 DIF 与 MACD 皆为负值，适合空单回补，不适合做多；DIF 由负转正且走势向上穿越 MACD 时**卖点**：DIF 由上往下突破 MACD 时；但若此时 DIF 与 MACD 皆为正值，适合买单停损，不适合做空；DIF 由正转负且走势向下穿越 MACD 时。**买卖点**：当 DIF 与 MACD 和 K 线走势明显背离时，为反转讯号，表多头走势中的卖点或空头走势的买点。

APO Absolute Price Oscillator **绝对价格振荡器**

real = APO(close, fastperiod=12, slowperiod=26, matype=0)

PPO Percentage Price Oscillator **比例价格振荡器**

real = PPO(close, fastperiod=12, slowperiod=26, matype=0)

$$APO = |EMA_{fast} - EMA_{slow}|$$

$$PPO = \frac{EMA_{fast} - EMA_{slow}}{EMA_{slow}}$$

MOM Momentum **动量**

real = MOM(close, timeperiod=10)

ROC Rate of change : ((price/prevPrice)-1)*100 **价格变化率**

real = ROC(close, timeperiod=10)

ROCP Rate of change Percentage: (price-prevPrice)/prevPrice **价格变化百分比**

real = ROCP(close, timeperiod=10)

ROCR Rate of change ratio: (price/prevPrice) **价格比率**

real = ROCR(close, timeperiod=10)

ROCR100 Rate of change ratio 100 scale: (price/prevPrice)*100 **价格比率 100 倍**

real = ROCR100(close, timeperiod=10)

$$ROC = \frac{Close_t - Close_{t-N}}{Close_{t-N}} \times 100$$

$$MOM = Close_t - Close_{t-N}$$

RSI Relative Strength Index **相对强弱指数**

real = RSI(close, timeperiod=14)

STOCHRSI Stochastic Relative Strength Index **随机相对强弱指标**

fastk, fastd = STOCHRSI(close, timeperiod=14, fastk_period=5, fastd_period=3, fastd_matype=0)

$$RSI = 100 \times \frac{RS}{1+RS} \quad X: \text{timeperiod}$$

RS 等于 X 天的平均上涨点数除以 X 天的平均下降点数
RSI1 – 6 日相对强弱指标 RSI2 – 12 日相对强弱指标 RSI3 – 24 日相对强弱指标 RS 通常取 14 天
$RSV = \frac{\text{第 } n \text{ 天的 RSI} - \text{最近 } n \text{ 天内的最低 RSI}}{\text{最近 } n \text{ 天内的最高 RSI} - \text{最近 } n \text{ 天内的最低 RSI}} \times 100 \quad (n = 9) \quad \text{fastk_period}$ $K \text{ 值} : K_t = \frac{2}{3} \times K_{t-1} + \frac{1}{3} \times RSV \quad \text{slowk_period}$ $D \text{ 值} : D_t = \frac{2}{3} \times D_{t-1} + \frac{1}{3} \times K_t \quad \text{slowd_period}$ $J \text{ 值} : J_t = 3 \times K_t - 2 \times D_t$

逻辑策略：注意大行情对 RSI 指标的‘钝化’，使得其超卖超买无意义。1. 指标值 70/30 通常为超买及超卖信号。当市况创下新高（低）但 RSI 并不处于新高（低）时，通常表明市场将出现反转。当 RSI 突破（超过前高或低点时），可能表示价格将有突变，RSI 需要与其他指标配合使用，不能单独产生信号。2. 短期 RSI1 上穿长期 RSI3，即 RSI 金叉，买入。短期 RSI1 下穿长期 RSI3，即 RSI 死叉，卖出。可以考虑出现信号过 x 天再买入卖出(过滤掉两线的‘纠缠’)

WILLR Williams' %R 威廉指标

real = WILLR(high, low, close, timeperiod=14)

$W\%R = \frac{\text{最近 } n \text{ 天内的最高价} - \text{第 } n \text{ 天的收盘价}}{\text{最近 } n \text{ 天内的最高价} - \text{最近 } n \text{ 天内的最低价}} \times 100 (n = 14)$ $RSV + W\%R = 100$

逻辑策略：W%R衡量卖方情况。当 W&R 高于 80，即处于超卖状态，行情即将见底，应当考虑买进。当 W&R 低于 20，即处于超买状态，行情即将见顶，应当考虑卖出。在 W&R 进入高位后，一般要回头，如果股价继续上升就产生了背离，是卖出信号。在 W&R 进入低位后，一般要反弹，如果股价继续下降就产生了背离。W&R 连续几次撞顶（底），局部形成双重或多重顶（底），是卖出（买进）的信号。同时，使用过程中应该注意与其他技术指标相互配合。在盘整的过程中，W&R 的准确性较高，而在上升或下降趋势当中，却不能只以 W&R 超买超卖信号作为行情判断的依据。

STOCH Stochastic 随机指标

slowk, slowd = STOCH(high, low, close, fastk_period=5, slowk_period=3, slowk_matype=0, slowd_period=3, slowd_matype=0)

STOCHF Stochastic Fast 快速随机指标

fastk, fastd = STOCHF(high, low, close, fastk_period=5, fastd_period=3, fastd_matype=0)

$RSV \text{ (Raw Stochastic Value)} = \frac{\text{第 } n \text{ 天的收盘价} - \text{最近 } n \text{ 天内的最低价}}{\text{最近 } n \text{ 天内的最高价} - \text{最近 } n \text{ 天内的最低价}} \times 100 \quad (n = 9 \text{ fastk_period})$ $K \text{ 值} : K_t = \frac{2}{3} \times K_{t-1} + \frac{1}{3} \times RSV \quad \text{slowk_period}$ $D \text{ 值} : D_t = \frac{2}{3} \times D_{t-1} + \frac{1}{3} \times K_t \quad \text{slowd_period}$ $J \text{ 值} : J_t = 3 \times K_t - 2 \times D_t$

逻辑策略：RSV 衡量买方情况。K/D 在 80 以上超买，20 以下超卖。J 大于 100 超买小于 0 超卖，情况出现较少往往具有有效性。交叉：K 上穿 D 金叉 K 下穿 D 死叉。

TRIX 1-day Rate-Of-Change (ROC) of a Triple Smooth EMA 三重光滑 EMA 的日变化率

real = TRIX(close, timeperiod=30)

1. Calculate the 10 bar exponential moving average of the closing price.
2. Calculate the 10 bar exponential moving average of the moving average calculated in step #1.
3. Calculate the 10 bar exponential moving average of the moving average calculated in step #2.
4. Calculate the 1 bar percent change of the moving average calculated in step #3.

逻辑策略：TRIX>0 超买，TRIX<0 超卖。若上穿 0 轴买入，下穿 0 轴卖出。消除短期趋势表明市场改变方向，配合含有量的指标可形成有效的信号系统。

ULTOSC

Ultimate Oscillator 极限振子

real = ULTOSC(high, low, close, timeperiod1=7, timeperiod2=14, timeperiod3=28)

$$BP = \text{Close}_t - \min(\text{Low}_t, \text{Close}_{t-1}) \quad TR: \text{True Range}$$

$$\text{ave1} = \frac{7 \text{ bar sum of } BP}{7 \text{ bar sum of } TR}$$

$$\text{ave2} = \frac{14 \text{ bar sum of } BP}{14 \text{ bar sum of } TR}$$

$$\text{ave3} = \frac{28 \text{ bar sum of } BP}{28 \text{ bar sum of } TR}$$

$$UO = \frac{4 \times \text{ave1} + 2 \times \text{ave2} + \text{ave3}}{7} \times 100$$

逻辑策略：30 和 70 为超卖超买线

MFI

Money Flow Index 货币流量指数

real = MFI(high, low, close, volume, timeperiod=14)

$$TP = (H + L + C)/3$$

$$\text{Money Flow} = TP \times \text{Volume}$$

$$\text{Money Ratio} = \text{Positive Money Flow} / \text{Negative Money Flow} \quad \text{Positive if } TP_t > TP_{t-1}$$

$$MFI = 100 - (100 / (1 + \text{Money Ratio}))$$

逻辑策略：通常用 14 个 bar 作为周期。20 和 80 为超卖和超买线

Volume Indicators 交易量指标

AD

Chaikin A/D Line AD 线随机指标

real = AD(high, low, close, volume)

ADOSC

Chaikin A/D Oscillator 佳庆指标

real = ADOSC(high, low, close, volume, fastperiod=3, slowperiod=10)

$$\text{收盘价位置指数} = \frac{(\text{Close} - \text{Low}) - (\text{High} - \text{Close})}{\text{High} - \text{Close}}$$

$$A/D \text{ line}_t = A/D \text{ line}_{t-1} + \text{收盘价位置指数} \times \text{Volume}$$

$$ADOSC = EMA_3(AD) - EMA_{10}(AD)$$

逻辑策略：AD 确认趋势决定交易方向，往往配合超买超卖如 KDJ 和威廉指标确认交易时机。股价上升 AD 上升则上升趋势确认，股价下降 AD 下降则下降趋势确认。A/D 与价格的背离可视为买卖信号，即底背离考虑买入，顶背离考虑卖出。应当注意 A/D 忽略了缺口的影响，事实上，跳空缺口的意义是不能轻易忽略的。A/D 指标无需设置参数。但在应用时，可结合指标的均线进行分析。

ADOSC 确认股价趋势。在股价上升趋势阶段，指标上形成的峰值比较高，谷值比较浅；在股价下降趋势阶段，指标上形成的峰值比较低，谷值比较深。判断股价趋势的强度。如果指标出现与股票价格的背离，那么说明股价趋势比较弱。指

标向上穿越0线为买入信号。指标向下穿越0线为卖出信号。当然，具体要不要交易还要根据具体情况而定。

OBV On Balance Volume 能量潮

real = OBV(close, volume)

累积 OBV : $OBV_t = \pm V_t + OBV_{t-1}$ V_t 的正负由价格涨跌决定

移动 OBV : $sm\ OBV_t = AVERAGE(OBV_t)$ 一般取9日或12日平均

修正型 OBV : VA (Volume Accumulation) 多空比率净额 $VA_n = VA_{n-1} + V_n \times \frac{(C_n - L_n) - (H_n - C_n)}{H_n - L_n}$

逻辑策略: OBV 曲线上升价格下降: 投资者对该股信心不断增强, 释放买进信号。OBV 曲线下降价格上升: 投资者对该股丧失信心, 释放卖出信号。OBV 曲线稳步上升价格上升: 上涨行情。OBV 曲线缓慢下跌价格下降: 下跌行情。OBV 快速上升: 买盘迅速涌进, 持续性不强, 短暂拉升后迅速下跌。OBV 快速下降: 卖盘迅速涌进, 后仍然会有持续下跌, 应该观望。注意区别 OBV 上升下降和单纯的量涨跌

Volatility Indicators 波动率指标

TRANGE True Range 真实波动范围

real = TRANGE(high, low, close)

ATR Average True Range 平均真实波幅

real = ATR(high, low, close, timeperiod=14)

NATR Normalized Average True Range 归一化平均值范围

real = NATR(high, low, close, timeperiod=14)

TR= max (H-L, |H-PDC|, |PDC-L|)

ATR=TR 的 t period 指数移动平均

NATR=NATR = ATR / Close * 100

Cycle Indicators 周期指标

HT_TRENDLINE Hilbert Transform - Instantaneous Trendline 希尔伯特变换—瞬时趋势线

real = HT_TRENDLINE(close)

HT_DCPERIOD Hilbert Transform-Dominant Cycle Period 希尔伯特变换—主要的循环周期

real = HT_DCPERIOD(close)

HT_DCPHASE Hilbert Transform-Dominant Cycle Phase 占主导地位的周期阶段

real = HT_DCPHASE(close)

HT_PHASOR Hilbert Transform-Phasor Components 相量组件

inphase, quadrature = HT_PHASOR(close)

HT_SINE Hilbert Transform-SineWave 正弦曲线

sine, leadsine = HT_SINE(close)

HT_TRENDMODE Hilbert Transform-Trend vs Cycle Mode 趋势和周期模式

integer = HT_TRENDMODE(close)

Price Transform 价格变换

AVGPRICE	Average Price 平均价格
<code>real = AVGPRICE(open, high, low, close)</code>	
MEDPRICE	Median Price 中位数价格
<code>real = MEDPRICE(high, low)</code>	
TYPPRICE	Typical Price 典型价格
<code>real = TYPPRICE(high, low, close)</code>	
WCLPRICE	Weighted Close Price 加权收盘价
<code>real = WCLPRICE(high, low, close)</code>	

Statistic Functions 统计功能

BETA	Beta 贝塔系数
<code>real = BETA(high, low, timeperiod=5)</code>	
CORREL	Pearson's Correlation Coefficient (r) 皮尔逊相关系数
<code>real = CORREL(high, low, timeperiod=30)</code>	
LINEARREG	Linear Regression 线性回归
<code>real = LINEARREG(close, timeperiod=14)</code>	
LINEARREG_ANGLE	Linear Regression Angle 线性回归角度
<code>real = LINEARREG_ANGLE(close, timeperiod=14)</code>	
LINEARREG_INTERCEPT	Linear Regression Intercept 线性回归截距
<code>real = LINEARREG_INTERCEPT(close, timeperiod=14)</code>	
LINEARREG_SLOPE	Linear Regression Slope 线性回归斜率
<code>real = LINEARREG_SLOPE(close, timeperiod=14)</code>	
STDDEV	Standard Deviation 标准差
<code>real = STDDEV(close, timeperiod=5, nbdev=1)</code>	
TSF	Time Series Forecast 时间序列预测
<code>real = TSF(close, timeperiod=14)</code>	
VAR	Variance 方差
<code>real = VAR(close, timeperiod=5, nbdev=1)</code>	

Math Transform 数学变换

ACOS	Vector Trigonometric ACos 反余弦
<code>real = ACOS(close)</code>	
ASIN	Vector Trigonometric ASin 反正弦
<code>real = ASIN(close)</code>	
ATAN	Vector Trigonometric ATan 反正切
<code>real = ATAN(close)</code>	
CEIL	Vector Ceil 向上取整
<code>real = CEIL(close)</code>	

COS real = COS(close)	Vector Trigonometric Cos 余弦
COSH real = COSH(close)	Vector Trigonometric Cosh 双曲余弦
EXP real = EXP(close)	Vector Arithmetic Exp 指数
FLOOR real = FLOOR(close)	Vector Floor 向下取整
LN real = LN(close)	Vector Log Natural 自然对数
LOG10 real = LOG10(close)	Vector Log10 常用对数
SIN real = SIN(close)	Vector Trigonometric Sin 正弦
SINH real = SINH(close)	Vector Trigonometric Sinh 双曲正弦
SQRT real = SQRT(close)	Vector Square Root 平方根
TAN real = TAN(close)	Vector Trigonometric Tan 正切
TANH real = TANH(close)	Vector Trigonometric Tanh 双曲正切

Math Operators 数学操作

ADD real = ADD(high, low)	Vector Arithmetic Add 加法
DIV real = DIV(high, low)	Vector Arithmetic Div 除法
MAX real = MAX(close, timeperiod=30)	Highest value over a specified period 指定的期间的最大值
MAXINDEX integer = MAXINDEX(close, timeperiod=30)	Index of highest value over a specified period 指定的期间的最大值的索引
MIN real = MIN(close, timeperiod=30)	Lowest value over a specified period 指定的期间的最小值
MININDEX integer = MININDEX(close, timeperiod=30)	Index of lowest value over a specified period 指定的期间的最小值的索引
MINMAX min, max = MINMAX(close, timeperiod=30)	Lowest and highest values over a specified period 指定的期间的最小和最大值
MINMAXINDEX minidx, maxidx = MINMAXINDEX(close, timeperiod=30)	Indexes of lowest and highest values over a specified period 指定的期间的最小和最大值的索引
MULT real = MULT(high, low)	Vector Arithmetic Mult 乘法
SUB	Vector Arithmetic Substraction 减法

real = SUB(high, low)

SUM

Summation 合计

real = SUM(close, timeperiod=30)

Pattern Recognition K 线图识别

CDL2CROWS

Two Crows 两只乌鸦

integer = CDL2CROWS(open, high, low, close)

组成： First candle: a candle in an uptrend/white body

Second candle: black body/the closing price above the prior closing price (gap between bodies)

Third candle: black body/the opening price within the prior body/the closing price within the body of the first line (gap close)

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	90	164	80	121
% of Occurrences	0.00 %	19.78 %	36.04 %	17.58 %	26.60 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	84	123	84	163
% of Occurrences	0.22 %	18.24 %	27.03 %	18.46 %	36.05 %

CDL3BLACKCROWS

Three Black Crows 三只黑乌鸦

integer = CDL3BLACKCROWS(open, high, low, close)

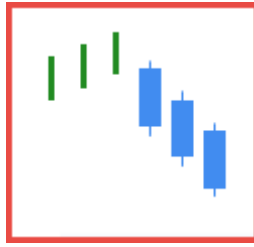
组成： First candle: a candle in an uptrend/black body

Second candle: black body/the opening price within the previous body/the closing price below the previous closing price

Third candle: black body/the opening price within the previous body/the closing price below the previous closing price

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	103	165	99	174
% of Occurrences	0.37 %	18.60 %	30.39 %	18.23 %	32.41 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	3	97	145	88	210
% of Occurrences	0.55 %	17.31 %	26.70 %	16.21 %	39.23 %

CDL3INSIDE

Three Inside Up/Down 三内上下震荡

integer = CDL3INSIDE(open, high, low, close)

组成：Three Inside Up

First candle: a candle in a downtrend/black body

Second candle: white body/the candle body is engulfed by the prior candle body

Third candle: the closing price is above the previous closing price

Three Inside Down

First candle: a candle in an uptrend/white body

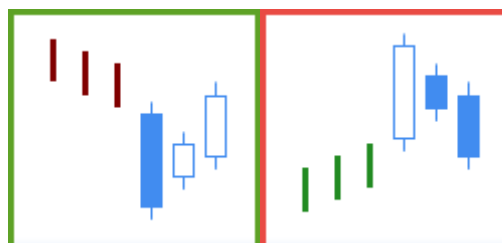
Second candle: black body/the candle body is engulfed by the prior candle body

Third candle: the closing price is below the previous closing price

逻辑：

预示信号：上涨/下跌

Efficiency statistics (5/10 candlesticks testing period):



Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	2,588	3,993	2,680	4,935
% of Occurrences	0.01 %	18.22 %	28.13 %	18.88 %	34.76 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	9	2,452	3,171	2,278	6,287
% of Occurrences	0.06 %	17.21 %	22.34 %	16.05 %	44.34 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	7	3,019	5,227	3,281	4,815
% of Occurrences	0.04 %	18.43 %	31.97 %	20.07 %	29.49 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	27	2,825	4,305	2,911	6,281
% of Occurrences	0.17 %	17.11 %	26.33 %	17.81 %	38.58 %

CDL3LINESTRIKE Three-Line Strike 三线震荡

integer = CDL3LINESTRIKE(open, high, low, close)

组成： Bearish Three-Line Strike

First candle: a candle in a downtrend/black body

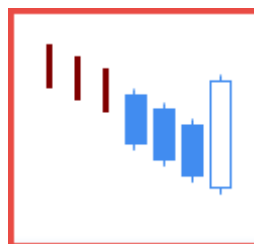
Second candle: black body/the opening price is within the previous body/the closing price is below the previous closing price

Third candle: black body/the opening price is within the previous body/the closing price is below the previous closing price

Fourth candle: white body/candle's body engulfs all previous black bodies

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	28	31	15	38
% of Occurrences	0.00 %	25.00 %	27.68 %	13.39 %	33.93 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	26	24	18	44
% of Occurrences	0.00 %	23.21 %	21.43 %	16.07 %	39.29 %

CDL3OUTSIDE

Three Outside Up/Down 三外下震荡

integer = CDL3OUTSIDE(open, high, low, close)

组成： Three Outside Up

First candle: a candle in a downtrend/black body

Second candle: white body/candle's body engulfs the prior (black) candle's body

Third candle: closing price above the previous closing price/white body

Three Outside Down

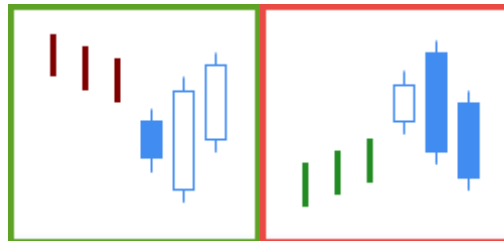
First candle: a candle in an uptrend/white body

Second candle: black body/candle's body engulfs the prior (white) candle's body

Third candle: closing price below the previous closing price/black body

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	1,794	2,879	1,904	3,364
% of Occurrences	0.02 %	18.02 %	28.96 %	19.15 %	33.85 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	19	1,692	2,263	1,631	4,338
% of Occurrences	0.19 %	16.83 %	22.76 %	16.40 %	43.82 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	30	2,217	3,962	2,407	3,628
% of Occurrences	0.25 %	17.86 %	32.36 %	19.66 %	29.87 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	37	2,068	3,334	2,120	4,685
% of Occurrences	0.30 %	16.59 %	27.23 %	17.31 %	38.57 %

CDL3STARSINSOUTH Three Stars In The South 南方三星

integer = CDL3STARSINSOUTH(open, high, low, close)

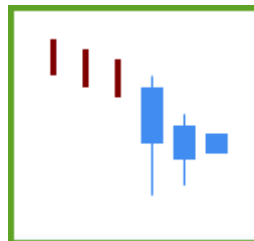
组成： First candle: a candle in a downtrend/black body/long lower shadow

Second candle: black body/the opening below the prior opening/the closing below or at the prior closing the low above the prior low

Third candle: a marubozu candle with black body/appears as a short line/a candle is located within the prior candle

逻辑：

预示信号： 上涨



CDL3WHITESOLDIERS Three Advancing White Soldiers 三白兵

integer = CDL3WHITESOLDIERS(open, high, low, close)

组成： First candle: a candle in a downtrend/white body

Second candle: white body/the opening price within the previous body/the closing price above the previous closing price

Third candle: white body/the opening price within the previous body/the closing price above the previous closing price

逻辑：

预示信号： 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	56	103	82	124
% of Occurrences	0.00 %	15.34 %	28.22 %	22.47 %	33.97 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	52	89	61	162
% of Occurrences	0.27 %	13.98 %	24.38 %	16.71 %	44.66 %

CDLABANDONEDBABY Abandoned Baby 弃婴

integer = CDLABANDONEDBABY(open, high, low, close, penetration=0)

组成： Bullish Abandoned Baby

First candle: a candle in a downtrend/black body

Second candle: a doji candle/the high price below the prior low price

Third candle: white body/the low price above the prior high price

Bearish Abandoned Baby

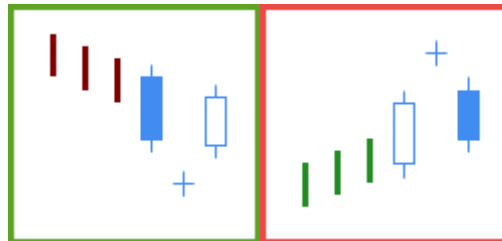
First candle: a candle in an uptrend/white body

Second candle: a doji candle/the low price above the prior high price

Third candle: black body/the high price below the prior low price

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	1	2	6	3
% of Occurrences	0.00 %	8.33 %	16.67 %	50.00 %	25.00 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	1	2	1	8
% of Occurrences	0.00 %	8.33 %	16.67 %	8.33 %	66.67 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	0	4	0	1
% of Occurrences	0.00 %	0.00 %	80.00 %	0.00 %	20.00 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	0	2	2	1
% of Occurrences	0.00 %	0.00 %	40.00 %	40.00 %	20.00 %

CDLADVANCEBLOCK Advance Block 推进

integer = CDLADVANCEBLOCK(open, high, low, close)

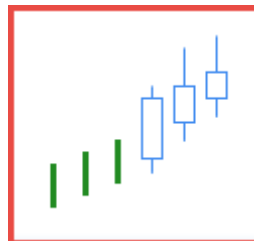
组成： First candle: a candle in an uptrend/white body

Second candle: white body/the opening price is within the previous body/the closing price is above the previous closing price

Third candle: white body/the opening price is within the previous body/the closing price is above the previous closing price

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	161	399	217	268
% of Occurrences	0.00 %	15.41 %	38.18 %	20.77 %	25.64 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	153	326	202	363
% of Occurrences	0.10 %	14.54 %	31.20 %	19.33 %	34.83 %

CDLBELTHOLD Belt-hold 带住

integer = CDLBELTHOLD(open, high, low, close)

组成： Bullish Belt Hold

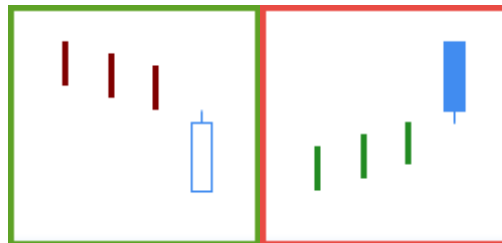
white body/no lower shadow/short upper shadow/appears as a long line

Bearish Belt Hold

black body/no upper shadow/short lower shadow/appears as a long line

逻辑：

预示信号：上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	1,099	1,566	1,172	2,183
% of Occurrences	0.00 %	18.26 %	26.01 %	19.47 %	36.26 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	1,051	1,240	973	2,755
% of Occurrences	0.02 %	17.44 %	20.60 %	16.16 %	45.78 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	1,434	2,514	1,597	2,380
% of Occurrences	0.05 %	18.04 %	31.71 %	20.14 %	30.06 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	11	1,350	2,107	1,387	3,074
% of Occurrences	0.14 %	16.89 %	26.57 %	17.49 %	38.91 %

CDLBREAKAWAY

Breakaway 分离

integer = CDLBREAKAWAY(open, high, low, close)

组成： Bearish Breakaway

First candle: a tall white candle

Second candle: a white candle/candle opens above the previous closing price (upward price gap, shadows can overlap)

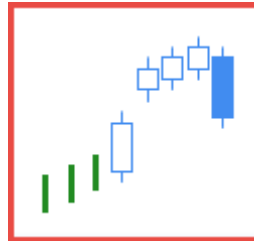
Third candle: a white or black candle/candle opens above the previous opening price

Fourth candle: a white candle/candle closes above the previous closing price

Fifth candle: a tall black candle/candle opens below the previous closing price/candle closes below the second line's opening price and above the first line's closing price/the price gap formed between the first and the second line is not closed

逻辑：

预示信号：下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	4	5	6	8
% of Occurrences	0.00 %	17.39 %	21.74 %	26.09 %	34.78 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	4	3	4	12
% of Occurrences	0.00 %	17.39 %	13.04 %	17.39 %	52.18 %

CDLCLOSINGMARUBOZU Closing Marubozu 收盘光头光脚

integer = CDLCLOSINGMARUBOZU(open, high, low, close)

组成：Closing White Marubozu

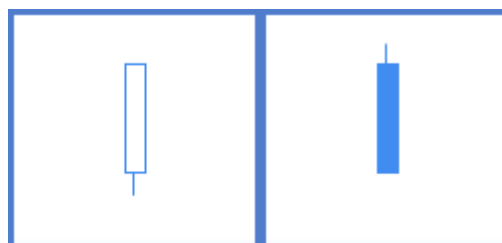
white body/no upper shadow/lower shadow smaller than the body/appears on as a short or long line

Closing Black Marubozu

black body/no upper shadow/upper shadow smaller than the body/appears as a short or long line

逻辑：

预示信号：无



CDLCONCEALBABYSWALL Concealing Baby Swallow 藏婴吞没形态

integer = CDLCONCEALBABYSWALL(open, high, low, close)

组成：First candle: a Black Marubozu candle in a downtrend

Second candle: a Black Marubozu candle/candle opens within the prior candle's body/candle closes below the prior closing price

Third candle: a High Wave basic candle with no lower shadow/candle opens below the prior closing price upper shadow enters the prior candle's body

Fourth candle: black body/candle's body engulfs the prior candle's body including the shadows

逻辑：

预示信号：上涨



CDLCOUNTERATTACK Counterattack

integer = CDLCOUNTERATTACK(open, high, low, close)

组成：Bullish Counterattack Lines

The First Candle is long and black.

The Second Candle is white; it has the Close at the same level (More or less) of the Close of the First Candle.

The Real Body of the Second Candle should be long as the Real Body of the First Candle.

Bearish Counterattack Lines

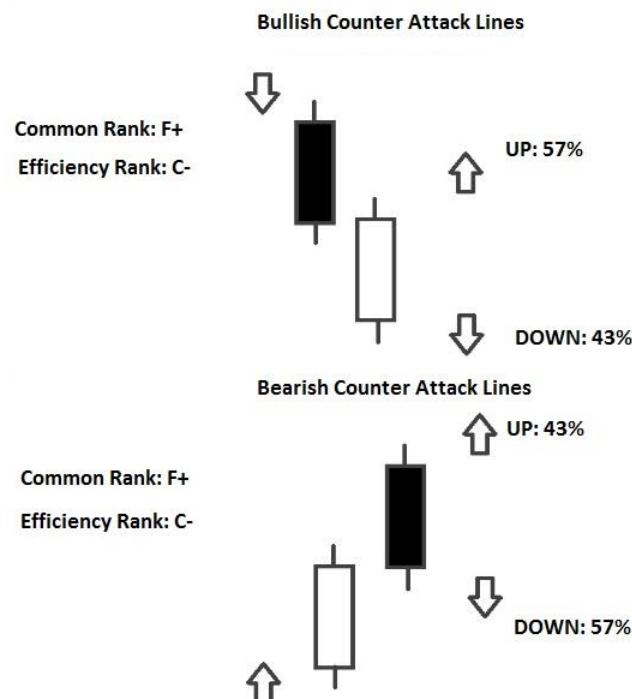
The First Candle is long and white.

The Second Candle is black; it has the Close at the same level (More or less) of the Close of the First Candle.

The Real Body of the Second Candle should be long as the Real Body of the First Candle.

逻辑：

预示信号：上涨/下跌



CDLDARKCLOUDCOVER Dark Cloud Cover 乌云盖

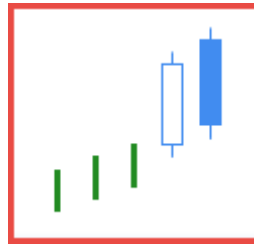
integer = CDLDARKCLOUDCOVER(open, high, low, close, penetration=0)

组成：First candle: a candle in an uptrend/white body

Second candle: black body/the opening above or equal of the prior high/the closing below the midpoint of the prior candle/the closing above the previous opening

逻辑：

预示信号：下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	762	1,406	822	1,117
% of Occurrences	0.05 %	18.49 %	34.22 %	20.00 %	27.24 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	11	706	1,163	730	1,499
% of Occurrences	0.27 %	16.91 %	28.30 %	17.77 %	36.75 %

CDLDOJI

Doji 十字星

integer = CDLDOJI(open, high, low, close)

组成： a doji candle/appears on as a long or short line

逻辑：

预示信号：无



CDLDOJISTAR

Doji Star 十字星

integer = CDLDOJISTAR(open, high, low, close)

组成： Bullish Doji Star

First candle: a candle in a downtrend/black body

Second candle: a doji candle/a body below the first candle's body

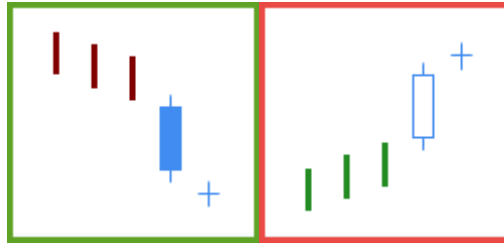
Bearish Doji Star

First candle: a candle in an uptrend/white body

Second candle: a doji candle/a body above the first candle's body

逻辑：

预示信号：上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	430	585	507	968
% of Occurrences	0.08 %	17.18 %	23.48 %	20.35 %	38.91 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	416	443	422	1,209
% of Occurrences	0.08 %	16.61 %	17.78 %	16.93 %	48.60 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	421	1,040	628	844
% of Occurrences	0.00 %	14.35 %	35.46 %	21.41 %	28.78 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	14	387	836	569	1,127
% of Occurrences	0.48 %	12.71 %	28.50 %	19.40 %	38.91 %

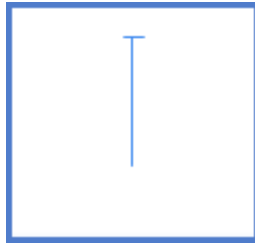
CDLDRAGONFLYDOJI Dragonfly Doji 蜻蜓十字星

integer = CDLDRAGONFLYDOJI(open, high, low, close)

组成： Opening, closing and maximum prices are the same or very similar/Long lower shadow/appears on as a long line

逻辑：

预示信号： 无



CDLENGULFING Engulfing Pattern 吞没

integer = CDLENGULFING(open, high, low, close)

组成： Bullish Engulfing

First candle: a candle in a downtrend/black body

Second candle: white body/candle's body engulfs the prior (black) candle's body

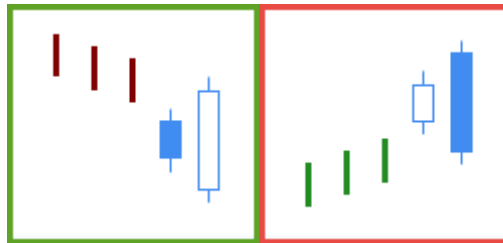
Bearish Engulfing

First candle: a candle in an uptrend/white body

Second candle: black body/candle's body engulfs the prior (white) candle's body

逻辑：

预示信号：上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	13	4,920	7,459	5,248	9,441
% of Occurrences	0.05 %	18.12 %	27.54 %	19.38 %	34.91 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	21	4,639	5,902	4,464	12,055
% of Occurrences	0.08 %	17.05 %	21.79 %	16.48 %	44.60 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	27	6,150	11,405	6,776	10,034
% of Occurrences	0.08 %	17.80 %	33.16 %	19.70 %	29.26 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	72	5,759	9,438	6,153	12,970
% of Occurrences	0.21 %	16.54 %	27.44 %	17.89 %	37.92 %

CDLEVENINGDOJISTAR Evening Doji Star 黄昏十字星

integer = CDLEVENINGDOJISTAR(open, high, low, close, penetration=0)

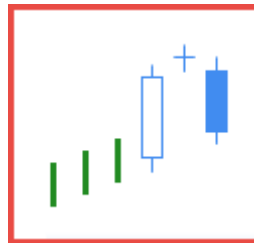
组成： First candle: a candle in an uptrend/white body

Second candle: a doji candle/a doji body above the previous candle body/the low price below the previous candle high price

Third candle: black body/candle body below the previous candle body/the closing price below the midpoint of the first candle body

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	43	77	54	88
% of Occurrences	0.00 %	16.41 %	29.39 %	20.61 %	33.59 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	42	62	40	118
% of Occurrences	0.00 %	16.03 %	23.66 %	15.27 %	45.04 %

CDLEVENINGSTAR Evening Star 黄昏之星

integer = CDLEVENINGSTAR(open, high, low, close, penetration=0)

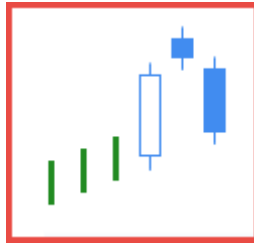
组成： First candle: a candle in an uptrend/white body

Second candle: white or black body/the candle body is located above the prior body

Third candle: black body/the candle body is located below the prior body/the candle closes at least halfway down the body of the first line

逻辑： 它通常出现在股价连续大幅上涨和数浪上涨的中期顶部和大顶部。它的出现预示着夜幕即将降临，一轮上涨行情已经结束。黄昏之星是反转形态，有很强的杀伤力。

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	3	234	395	272	413
% of Occurrences	0.23 %	17.54 %	29.99 %	20.65 %	31.59 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	227	308	242	536
% of Occurrences	0.30 %	16.94 %	23.39 %	18.38 %	40.99 %

CDLGAPSIDESIDEWHITE Up/Down-gap side-by-side white lines 上/下间隙并排的白色线条

integer = CDLGAPSIDESIDEWHITE(open, high, low, close)

组成： Bullish Side-by-Side White Lines

First candle: a candle in an uptrend/white body

Second candle: white body/the low price above the prior high price

Third candle: white body/the low price above the first line high price/the candle's size similar to the prior candle's size

Bearish Side-by-Side White Lines

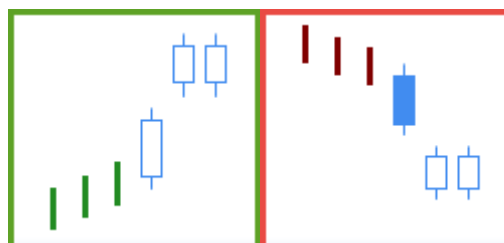
First candle: a candle in a downtrend/black body

Second candle: white body/the high price below the prior low price

Third candle: white body/the high price below the first line low price/the candle's size similar to the prior candle's size

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	31	89	58	49
% of Occurrences	0.00 %	13.66 %	39.21 %	25.55 %	21.58 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	24	70	53	80
% of Occurrences	0.00 %	10.57 %	30.84 %	23.35 %	35.24 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	3	4	4	2
% of Occurrences	0.00 %	23.08 %	30.77 %	30.77 %	15.38 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	2	3	4	4
% of Occurrences	0.00 %	15.38 %	23.08 %	30.77 %	30.77 %

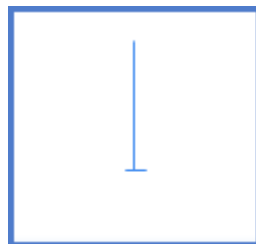
CDLGRAVESTONEDOJI Gravestone Doji 墓碑十字线

integer = CDLGRAVESTONEDOJI(open, high, low, close)

组成： Opening, closing and minimum prices are the same or very similar/Long upper shadow/appears on as a long line

逻辑：

预示信号：无



CDLHAMMER Hammer 锤

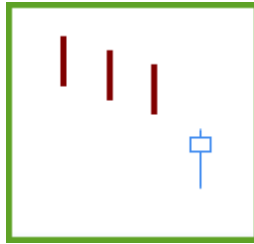
integer = CDLHAMMER(open, high, low, close)

组成： white or black candle with a small body/no upper shadow or the shadow cannot be longer than the body/lower shadow between two to three times longer than the body

if the gap is created at the opening or at the closing, it makes the signal stronger/appears as a long line

逻辑：

预示信号：上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	8	2,128	2,488	1,827	3,493
% of Occurrences	0.08 %	21.32 %	25.02 %	18.37 %	35.21 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	13	2,054	1,964	1,526	4,387
% of Occurrences	0.13 %	20.53 %	19.75 %	15.35 %	44.24 %

CDLHANGINGMAN

Hanging Man 吊人

integer = CDLHANGINGMAN(open, high, low, close)

组成 : white or black candle with a small body/no upper shadow or the shadow cannot be longer than the body/lower shadow at least two times longer than the body

if the gap is created at the opening or at the closing, it makes the signal stronger/appears as a long line/the body fully located above the trendline

逻辑 : 主力在高位开始出货, 盘中出现长阴, 为了达到骗线, 主力在尾市将股价拉起, 形成长长的下影线, 使投资者认为下档有强支撑, 而纷纷跟进。吊颈既有巨大的杀伤性, 又有欺骗性,

预示信号 : 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	2,890	7,028	4,218	6,248
% of Occurrences	0.02 %	14.16 %	34.47 %	20.69 %	30.66 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	21	2,661	5,655	3,857	8,194
% of Occurrences	0.10 %	12.95 %	27.74 %	18.92 %	40.29 %

CDLHARAMI

Harami Pattern 阴阳线(反吞没)

integer = CDLHARAMI(open, high, low, close)

组成： Bullish Harami

First candle: a candle in a downtrend/black body

Second candle: white body/candle's body engulfed by the prior (black) candle's body

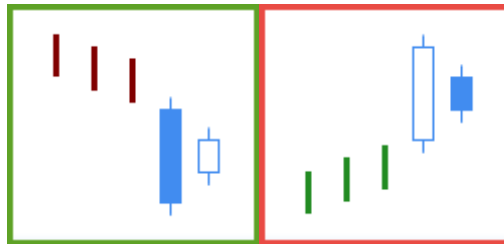
Bearish Harami

First candle: a candle in an uptrend/white body

Second candle: black body/candle's body engulfed by the prior (white) candle's body

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	36	5,371	7,040	5,125	10,290
% of Occurrences	0.13 %	19.15 %	25.27 %	18.39 %	37.06 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	44	5,181	5,562	4,286	12,789
% of Occurrences	0.16 %	18.44 %	19.96 %	15.38 %	46.06 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	13	5,545	11,295	6,968	10,025
% of Occurrences	0.04 %	16.34 %	33.37 %	20.59 %	29.66 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	58	5,137	9,172	6,219	13,260
% of Occurrences	0.17 %	15.01 %	27.10 %	18.37 %	39.35 %

CDLHARAMICROSS

Harami Cross Pattern 交叉阴阳线

integer = CDLHARAMICROSS(open, high, low, close)

组成： Bullish Harami Cross

First candle: a candle in a downtrend/black body/appears on as a long line

Second candle: a doji candle with two shadows/the candle (including shadows) is engulfed by the previous candle's body

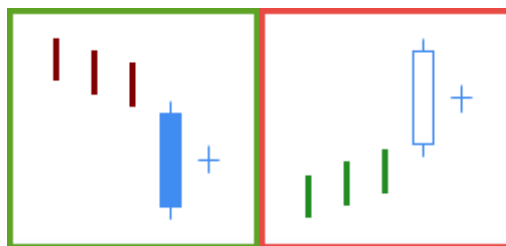
Bearish Harami Cross

First candle: a candle in an uptrend/white body/appears on as a long line

Second candle: a doji candle with two shadows/the candle (including shadows) is engulfed by the previous candle's body

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	3	201	315	220	393
% of Occurrences	0.27 %	17.49 %	27.83 %	19.43 %	34.98 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	185	246	182	515
% of Occurrences	0.35 %	15.99 %	21.73 %	16.08 %	45.85 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	197	512	275	458
% of Occurrences	0.07 %	13.58 %	35.48 %	19.06 %	31.81 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	5	187	404	262	585
% of Occurrences	0.35 %	12.61 %	28.00 %	18.16 %	40.88 %

CDLHIGHWAVE

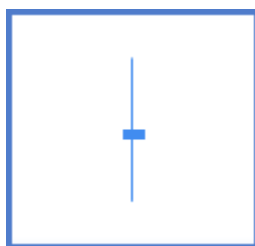
High-Wave Candle 长脚十字线

integer = CDLHIGHWAVE(open, high, low, close)

组成 : a black or white body/very small body/at least one shadow required/appears on as a long line/the length of at least one shadows is at least 3 times larger than the body

逻辑 :

预示信号 : 无



CDLHIKKAKE

Hikkake Pattern 陷阱

CDLHIKKAKEMOD

Modified Hikkake Pattern 改良的陷阱

integer = CDLHIKKAKE(open, high, low, close)

integer = CDLHOMINGPIGEON(open, high, low, close)

组成 : Hikkake Pattern

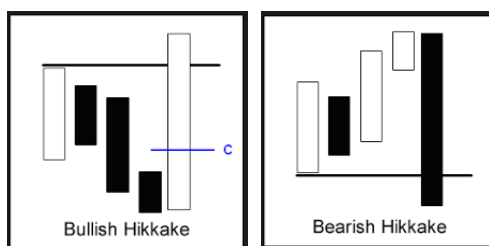
三日 K 线模式，与阴阳线类似，第二日价格在前一日实体范围内，上升趋势中，第三日收盘价高于前两日，下降反转失败，上升趋势继续。下降趋势中，第三日收盘价低于前两日，上升反转失败，下降趋势继续。(可能具有多日类似模式)

Modified Hikkake Pattern

三日 K 线模式，与陷阱类似，上升趋势中，第三日跳空高开；下跌趋势中，第三日跳空低开，向上反转失败，下降趋势继续。(可能具有多日类似模式)

逻辑 :

预示信号 : 上升/下降



CDLHOMINGPIGEON

Homing Pigeon 信鸽

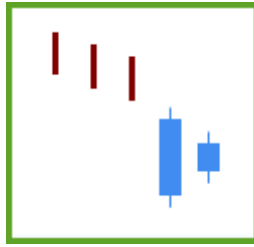
integer = CDLHOMINGPIGEON(open, high, low, close)

组成 : First candle: a candle in a downtrend/black body

Second candle: black body/candle's body engulfed by the prior candle's body

逻辑 :

预示信号 : 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	65	1,470	1,952	1,529	2,906
% of Occurrences	0.82 %	17.74 %	24.64 %	19.30 %	37.50 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	73	1,413	1,547	1,236	3,653
% of Occurrences	0.92 %	16.92 %	19.53 %	15.60 %	47.03 %

CDLIDENTICAL3CROWS Identical Three Crows 相同的三只乌鸦

integer = CDLIDENTICAL3CROWS(open, high, low, close)

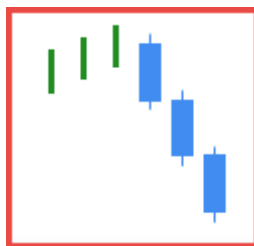
组成： First candle: a candle in an uptrend/black body

Second candle: black body/the opening price at or near the prior close

Third candle: black body/the opening price at or near the prior close

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	8	15	5	18
% of Occurrences	0.00 %	17.39 %	32.61 %	10.87 %	39.13 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	7	13	6	20
% of Occurrences	0.00 %	15.22 %	28.26 %	13.04 %	43.48 %

CDLINNECK

In-Neck Pattern 颈纹

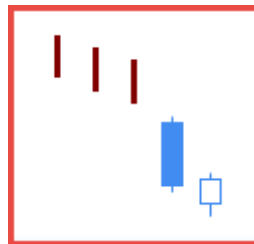
integer = CDLINNECK(open, high, low, close)

组成： First candle: a candle in a downtrend/black body/appears on as a long line

Second candle: white body/the opening price below the previous closing price/the closing price is slightly above the previous closing price (up to 15% of the first line body)

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	43	64	42	53
% of Occurrences	0.00 %	21.29 %	31.68 %	20.79 %	26.24 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	41	55	39	67
% of Occurrences	0.00 %	20.30 %	27.23 %	19.31 %	33.16 %

CDLINVERTEDHAMMER

Inverted Hammer 倒锤

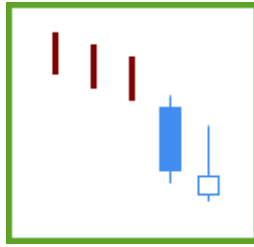
integer = CDLINVERTEDHAMMER(open, high, low, close)

组成： First candle: a candle in a downtrend/black body

Second candle: a white or black candle with a small body/no lower shadow or the shadow cannot be longer than then body/upper shadow at least 2.5 times longer than the body/the open below or at the level of the previous candle's close

逻辑：

预示信号： 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	478	548	483	1,042
% of Occurrences	0.16 %	18.55 %	21.45 %	18.90 %	40.94 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	466	437	365	1,283
% of Occurrences	0.16 %	18.08 %	17.10 %	14.29 %	50.37 %

CDLKICKING

Kicking 踢

CDLKICKINGBYLENGTH

Kicking-bull/bear determined by the longer marubozu 踢牛/踢熊

integer = CDLKICKING(open, high, low, close)

integer = CDLKICKINGBYLENGTH(open, high, low, close)

组成：Kicking Up (Bullish Kicking)

First candle: a Black Marubozu/appears on as a long line

Second candle: a White Marubozu/price gaps upward/appears on as a long line

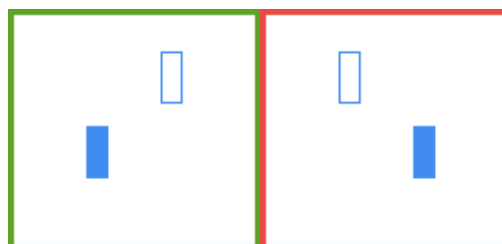
Kicking Down (Bearish Kicking)

First candle: a White Marubozu/appears on as a long line

Second candle: a Black Marubozu/price gaps downward/appears on as a long line

逻辑：

预示信号：上涨/下跌



CDLLADDERBOTTOM

Ladder Bottom 梯底

integer = CDLLADDERBOTTOM(open, high, low, close)

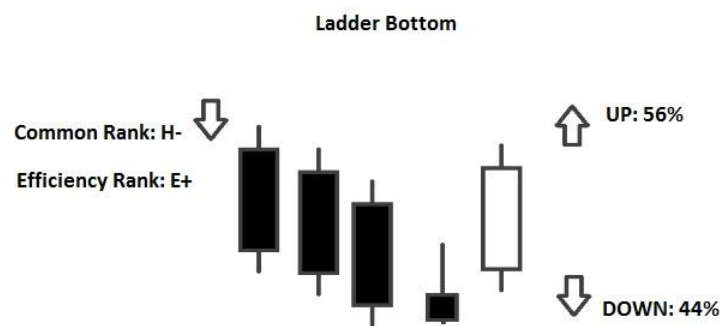
组成：The First, Second and Third Candle are long and black; each Candle has the Close and the Open below the Close and Open of the Previous Candle.

The Fourth Candle is black, with a short Real Body and a long Upper Shadow.

The Fifth Candle is long and white, it has the Open above the Real Body of the Fourth Candle.

逻辑：

预示信号：上涨



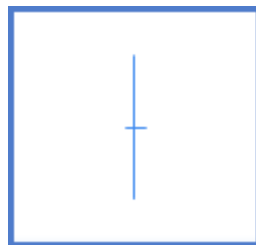
CDLLONGLEGGEDDOJI Long Legged Doji 长腿十字线

integer = CDLLONGLEGGEDDOJI(open, high, low, close)

组成： a doji candle/opening and closing prices are the same or similar/upper and lower shadow are very long/body is located in the middle of the candle or nearly mid-range/appears on as a long line

逻辑：

预示信号：无



CDLLONGLINE Long Line Candle 长线

integer = CDLLONGLINE(open, high, low, close)

组成： Long White Candle

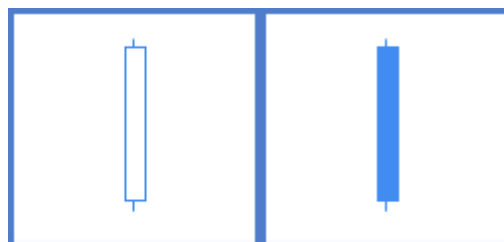
white body/upper and lower shadow is required/none of the shadows can be larger than the body/the candlestick body three times higher than the average body of the last 5 or 10 candles/appears on as a long line

Long Black Candle

black body/upper and lower shadow is required/none of the shadows can be larger than the body/the candlestick body three times higher than the average body of the last 5 or 10 candles/appears on as a long line

逻辑：

预示信号：无



CDLMARUBOZU Marubozu 光头光脚

integer = CDLMARUBOZU(open, high, low, close)

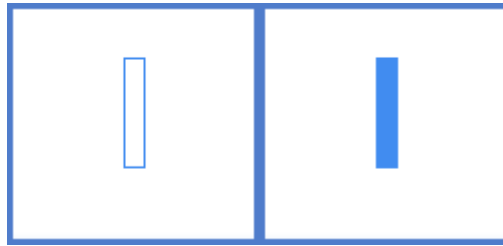
组成： White Marubozu

white body/lack of shadows/appears as a short or long line

Black Marubozu

black body/lack of shadows/appears on as a short or long line

逻辑：无



CDLMATCHINGLOW

Matching Low 匹配低

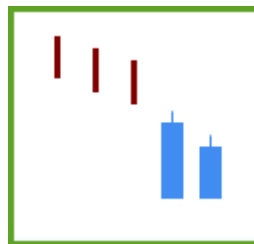
integer = CDLMATCHINGLOW(open, high, low, close)

组成： First candle: a candle in a downtrend/black body/no lower shadow/appears as a long line

Second candle: black body/the opening price is below the previous opening price/the closing price is at the level of the previous closing price/no lower shadow

逻辑：

预示信号：上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	11	31	15	43
% of Occurrences	0.00 %	11.00 %	31.00 %	15.00 %	43.00 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	10	25	12	53
% of Occurrences	0.00 %	10.00 %	25.00 %	12.00 %	53.00 %

CDLMATHOLD

Mat Hold 垫住

integer = CDLMATHOLD(open, high, low, close, penetration=0)

组成： Bullish Mat Hold Pattern

The First Candle is long and white. Then there is a Gap Up between the First and Second Candle.

The Second Candle is black, it has a short Real Body; moreover it has the Close above the Close of the First Candle.

The Third Candle can be white or black (It doesn't matter), but it has a short Real Body.

The Fourth Candle is black, with a short Real Body.

The Second, Third and Fourth Candle represent a decline in prices; moreover their Real Bodies are above the Low of the First Candle.

The Fifth Candle is long and white; it has the Close above the High of the Second Candle.

Bearish Mat Hold Pattern

The First Candle is long and black. Then there is a Gap Down between the First and Second Candle.

The Second Candle is white, it has a short Real Body; moreover it has the Close below the Close of the First Candle.

The Third Candle can be white or black (It doesn't matter), but it has a short Real Body.

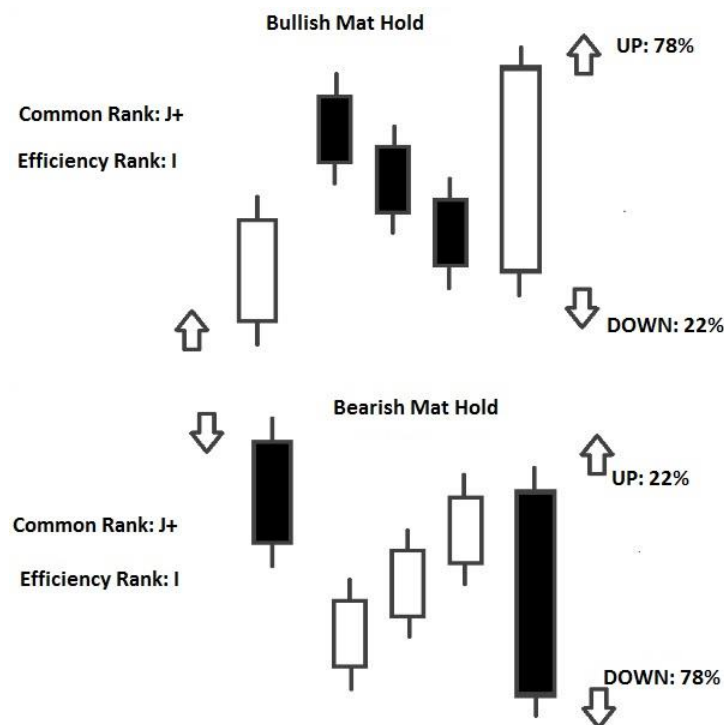
The Fourth Candle is white, with a short Real Body.

The Second, Third and Fourth Candle represent a rise in prices; moreover their Real Bodies are below the High of the First Candle.

The Fifth Candle is long and black; it has the Close below the Low of the Second Candle.

逻辑：

预示信号：上涨/下跌



CDLMORNINGDOJISTAR Morning Doji Star 早晨十字星

integer = CDLMORNINGDOJISTAR(open, high, low, close, penetration=0)

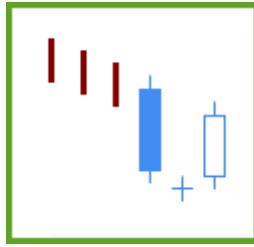
组成： First candle: a candle in a downtrend/black body

Second candle: a doji candle/a doji body below the previous candle body/the high price above the previous candle low price

Third candle: white body/candle body above the previous candle body/the closing price above the midpoint of the first candle body

逻辑：

预示信号：上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	79	83	65	138
% of Occurrences	0.00 %	21.64 %	22.74 %	17.81 %	37.81 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	74	67	53	171
% of Occurrences	0.00 %	20.27 %	18.36 %	14.52 %	46.85 %

CDLMORNINGSTAR

Morning Star 晨星

integer = CDLMORNINGSTAR(open, high, low, close, penetration=0)

组成 : First candle: a candle in a downtrend/black body

Second candle: white or black body/the candle body is located below the prior body

Third candle: white body/the candle body is located above the prior body/the candle closes at least halfway up the body of the first line

逻辑 : 通常出现在股价连续大幅下跌和数浪下跌的中期底部和大底部。暗示多空力量对比已开始发生转变, 一轮上升行情已经开始。

预示信号 : 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	381	461	301	716
% of Occurrences	0.11 %	20.36 %	24.77 %	16.17 %	38.59 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	366	344	270	879
% of Occurrences	0.11 %	19.56 %	18.48 %	14.51 %	47.34 %

CDLONNECK

On-Neck Pattern 颈型

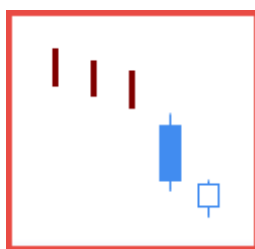
integer = CDLONNECK(open, high, low, close)

组成： First candle: a candle in a downtrend/black body/appears on as a long line

Second candle: white body/the opening price below the previous closing price/the closing price is equal to the previous low price

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	12	26	7	19
% of Occurrences	0.00 %	18.75 %	40.62 %	10.94 %	29.69 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	12	24	8	20
% of Occurrences	0.00 %	18.75 %	37.50 %	12.50 %	31.25 %

CDLPIERCING

Piercing Pattern 穿孔模式

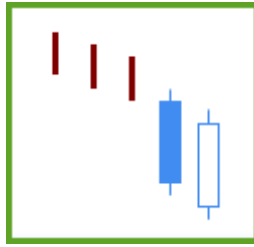
integer = CDLPIERCING(open, high, low, close)

组成： First candle: a candle in a downtrend/black body

Second candle: white body/the opening below or equal of the prior low/the closing above the midpoint of the prior candle's body/the closing below the previous opening

逻辑：

预示信号： 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	642	799	584	1,178
% of Occurrences	0.12 %	19.90 %	24.91 %	18.21 %	36.86 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	5	625	637	494	1,446
% of Occurrences	0.16 %	19.33 %	19.86 %	15.40 %	45.25 %

CDLRICKSHAWMAN

Rickshaw Man 车夫

integer = CDLRICKSHAWMAN(open, high, low, close)

组成： Is a Doji Line, with a Real Body located halfway between the two Shadows (That's why is different from a Long Legged Doji) /It has both Shadows (Upper and Lower) very long.

逻辑：

预示信号： 无

Rickshaw Man

Common Rank: F

Efficiency Rank: D



Continuation: 51%

Reversal: 49%

CDLRISEFALL3METHODS

Rising/Falling Three Methods 上升/下降三法

integer = CDLRISEFALL3METHODS(open, high, low, close)

组成： Rising Three Methods

The First and Fifth Candle are white and are longer than the other Three Candles of the Pattern.

The Second, Third and Fourth Candle are black (Or they alternate the color: it only matters that they represent a Decline in Prices; normally is the Third Candle that can be of any color). Moreover these Candles are fully contained within the Real Body of the First Candle (or within the High-Low Range of the First Candle); while the Lows are above the Open of the First Candle and the Highs are below the Close of the First Candle. The Close of the Fifth Candle is above the Close of the First Candle.

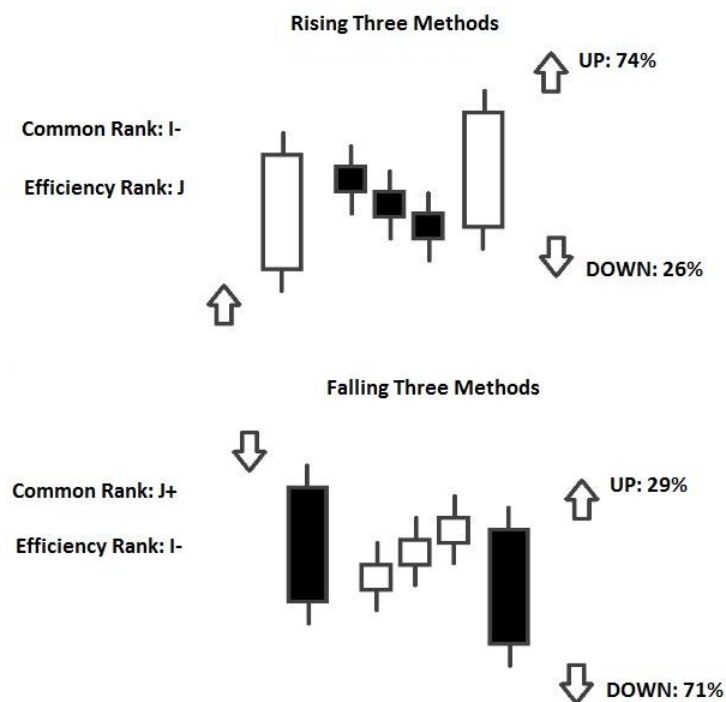
Falling Three Methods.

The First and Fifth Candle are black and are longer than the other Three Candles of the Pattern.

The Second, Third and Fourth Candle are white(Or they alternate the color: it only matters that they represent a Rise in Prices; normally is the Third Candle that can be of any color). Moreover these Candles are fully contained within the Real Body of the First Candle (or within the High-Low Range of the First Candle); while the Lows are below the Open of the First Candle and the Highs are above the Close of the First Candle. The Close of the Fifth Candle is below the Close of the First Candle.

逻辑：

预示信号：上涨/下跌



CDLSEPARATINGLINES Separating Lines 分割线

integer = CDLSEPARATINGLINES(open, high, low, close)

组成：Bullish Separating Lines

First candle: a candle in an uptrend/black body/appears as a long line

Second candle: white body/the opening price is equal to the previous opening price

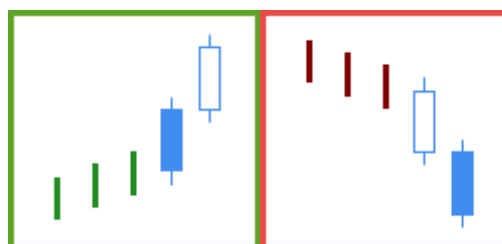
Bearish Separating Lines

First candle: a candle in a downtrend/white body/appears as a long line

Second candle: black body/the opening price is equal to the previous opening price

逻辑：

预示信号：上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	18	50	32	58
% of Occurrences	0.00 %	11.39 %	31.65 %	20.25 %	36.71 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	17	33	34	74
% of Occurrences	0.00 %	10.76 %	20.89 %	21.52 %	46.83 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	22	21	15	36
% of Occurrences	0.00 %	23.40 %	22.34 %	15.96 %	38.30 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	22	18	11	43
% of Occurrences	0.00 %	23.40 %	19.15 %	11.70 %	45.75 %

CDLSHOOTINGSTAR ShCoting Star 流星

integer = CDLSHOOTINGSTAR(open, high, low, close)

组成： One-Candle Shooting Star

white or black candle with a small body/no lower shadow or the shadow cannot be longer than the body/upper shadow at least two times longer than the body

if the gap is created at the opening or the closing, it makes the signal stronger/appears as a long line

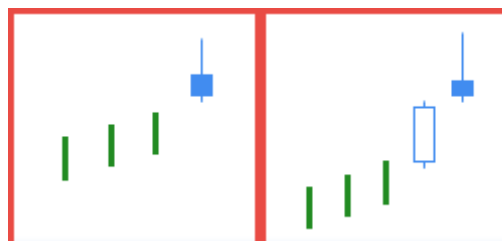
Two-Candle Shooting Star

First candle: a candle in an uptrend/white body

Second candle: a white or black candle with a small body/no lower shadow or the shadow cannot be longer than then body/upper shadow at least 2.5 times longer than the body/the open above or at the level of the previous candle's close

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	25	3,258	5,892	3,360	4,692
% of Occurrences	0.15 %	18.76 %	34.20 %	19.50 %	27.39 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	64	3,031	4,840	3,093	6,199
% of Occurrences	0.37 %	17.22 %	28.10 %	17.95 %	36.36 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	407	790	530	748
% of Occurrences	0.04 %	16.40 %	31.91 %	21.41 %	30.24 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	4	377	647	470	978
% of Occurrences	0.16 %	15.07 %	26.13 %	18.98 %	39.66 %

CDLSHORTLINE

Short Line Candle 短线

integer = CDLSHORTLINE(open, high, low, close)

组成：Short White Candle

white body/required lower and upper shadow/none of the shadows can be larger than the body/appears on as a short line

Short Black Candle

black body/required lower and upper shadow/none of the shadows can be larger than the body/appears as a short line

逻辑：

预示信号：无



CDLSPINNINGTOP

Spinning Top 陀螺

integer = CDLSPINNINGTOP(open, high, low, close)

组成： White Spinning Top

white body/at least one shadow required/at least one shadow has to be longer than the body/appears on as a long and a short line

if appears on as a long line, none of the shadows can exceed three times the body (otherwise we would have the High Wave basic candle)

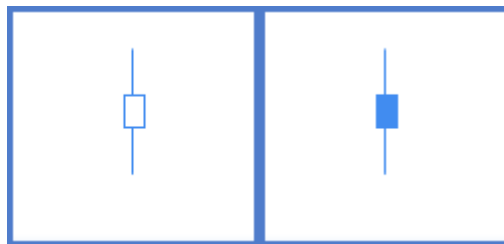
Black Spinning Top

black body/at least one shadow required/body cannot be larger than any of the shadows/appears as a short line

if none of the shadows exceeds three times the body, it is allowed to appear as a long line

逻辑：

预示信号： 无



CDLSTALLEDPATTERN Stalled Pattern 停滞模式

integer = CDLSTALLEDPATTERN(open, high, low, close)

组成： Deliberation

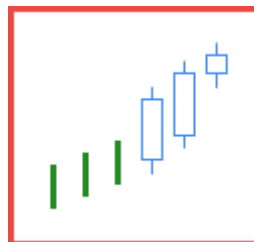
First candle: a candle in an uptrend/white body

Second candle: white body/the opening price is above the previous opening price/the closing price is above the previous closing price

Third candle: white body/the opening price is slightly lower or higher than the previous closing price/the closing price is above the previous closing price

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	333	1,196	645	534
% of Occurrences	0.00 %	12.30 %	44.17 %	23.82 %	19.71 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	2	298	939	607	862
% of Occurrences	0.07 %	10.93 %	34.68 %	22.42 %	31.90 %

CDLSTICKSANDWICH Stick Sandwich 棍子三明治

integer = CDLSTICKSANDWICH(open, high, low, close)

组成： Bearish Stick Sandwich

The First Candle: white, it has a short Upper shadow (Or it has not an Upper Shadow) that represents a new High in the Uptrend.

The Second Candle: black, it has the Close below the Open of the First Candle (The Real Body is below the Close of the First Candle).

The Third Candle: white, it has the Open below the Close of the Second Candle whereas it has the Close at the same level (More or less) of the Close of the First Candle (So that it fully contains the Real Body of the Second Candle).

Bullish Stick Sandwich

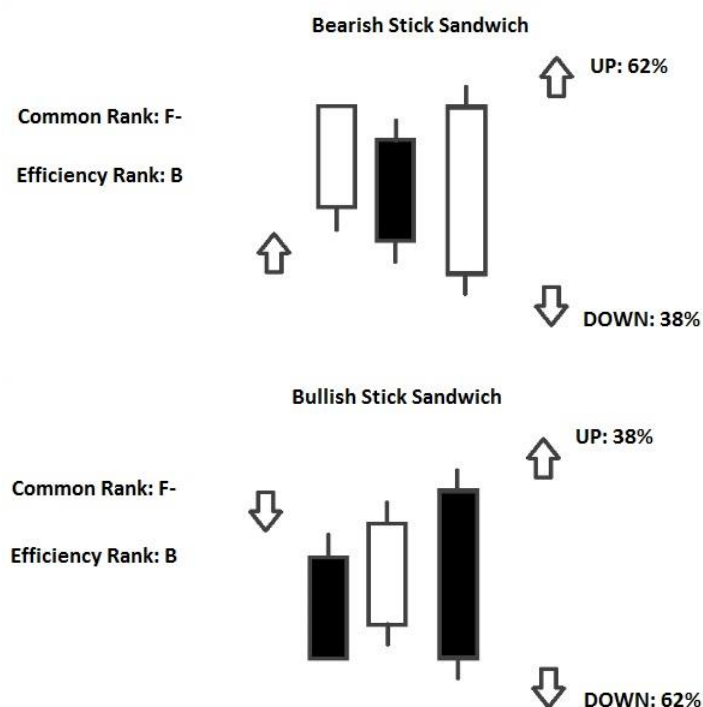
The First Candle: black, it has a short Lower shadow (Or it has not a Lower Shadow) that represents a new Low in the Downtrend.

The Second Candle: white, it has the Open above the Close of the First Candle (The Real Body is above the close of the First Candle).

The Third Candle: black, it has the Open above the Close of the Second Candle whereas it has the Close at the same level (More or less) of the Close of the First Candle (So that it fully contains the Real Body of the Second Candle).

逻辑：

预示信号： 上涨/下跌



CDLTAKURI

Takuri (Dragonfly Doji with very long lower shadow) 托里

CDLTASUKIGAP

Tasuki Gap 翼隙

integer = CDLTAKURI(open, high, low, close)

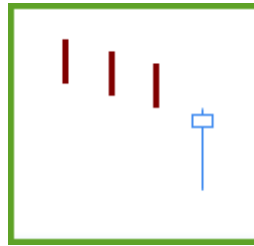
integer = CDLTASUKIGAP(open, high, low, close)

组成： white or black candle with a small body/no upper shadow or the shadow cannot be longer than the body/lower shadow at least three times longer than the body

if the gap is created at the opening or at the closing, it makes the signal stronger/appears as a long line

逻辑：

预示信号： 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	8	2,195	2,492	1,835	3,406
% of Occurrences	0.08 %	22.01 %	25.08 %	18.47 %	34.36 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	10	2,110	2,001	1,549	4,266
% of Occurrences	0.10 %	21.14 %	20.14 %	15.59 %	43.03 %

CDLTHRUSTING

Thrusting Pattern 推模式

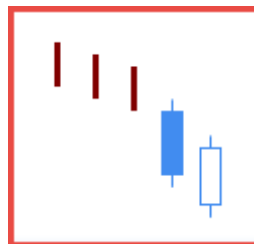
integer = CDLTHRUSTING(open, high, low, close)

组成： First candle: a candle in a downtrend/black body/appears as a long line

Second candle: white body/the opening below the prior low/the closing above the previous candle's closing/the closing below the midpoint of the previous candle's body/appears as a long line

逻辑：

预示信号： 下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	614	684	451	797
% of Occurrences	0.00 %	24.12 %	26.87 %	17.71 %	31.30 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	1	595	567	413	970
% of Occurrences	0.04 %	23.33 %	22.27 %	16.22 %	38.14 %

CDLTRISTAR Tristar Pattern 三星模式

integer = CDLTRISTAR(open, high, low, close)

组成： Bullish Tri-Star

First candle: a doji candle in a downtrend

Second candle: a doji candle/a body below the prior body

Third candle: a doji candle/a body above the prior body

Bearish Tri-Star

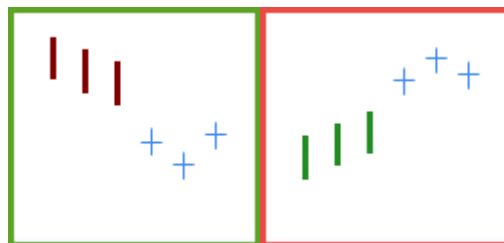
First candle: a doji candle in an uptrend

Second candle: a doji candle/a body above the prior body

Third candle: a doji candle//a body below the prior body

逻辑：

预示信号： 上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	8	18	13	12
% of Occurrences	0.00 %	15.69 %	35.29 %	25.49 %	23.53 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	8	16	6	21
% of Occurrences	0.00 %	15.69 %	31.37 %	11.76 %	41.18 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	12	21	9	7
% of Occurrences	0.00 %	24.49 %	42.86 %	18.37 %	14.28 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	11	13	10	15
% of Occurrences	0.00 %	22.45 %	26.53 %	20.41 %	30.61 %

CDLUNIQUE3RIVER Unique 3 River 独特的三河

integer = CDLUNIQUE3RIVER(open, high, low, close)

组成： First candle: black candle/a candle in a downtrend

Second candle: black candle/a body within the prior body/the lower shadow is at least twice longer than the body/the low price below the prior low price

Third candle: white candle/a body located below the prior body/the low price above the prior low price

逻辑：

预示信号： 上涨



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	8	6	7	9
% of Occurrences	0.00 %	26.67 %	20.00 %	23.33 %	30.00 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	8	4	6	12
% of Occurrences	0.00 %	26.67 %	13.33 %	20.00 %	40.00 %

CDLUPSIDEGAP2CROWS Upside Gap Two Crows 双飞乌鸦

integer = CDLUPSIDEGAP2CROWS(open, high, low, close)

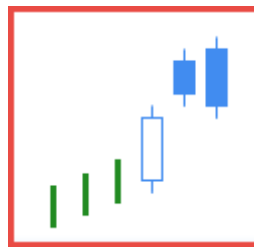
组成： First candle: a candle in an uptrend/white body

Second candle: black body/candle's body above the previous candle's body

Third candle: black body/candle's body engulfs the prior candle's body

逻辑：

预示信号：下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	25	55	31	39
% of Occurrences	0.00 %	16.67 %	36.67 %	20.67 %	25.99 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	24	42	30	54
% of Occurrences	0.00 %	16.00 %	28.00 %	20.00 %	36.00 %

CDLXSIDEGAP3METHODS Upside/Downside Gap Three Methods 上行/下行缺口三方法

integer = CDLXSIDEGAP3METHODS(open, high, low, close)

组成：Upside Gap Three Methods

First candle: a candle in an uptrend/white body

Second candle: white body/the low above the prior high (gap)

Third candle: black body/the opening price within the prior body/the closing price within the body of the first line (gap close)

Downside Gap Three Methods

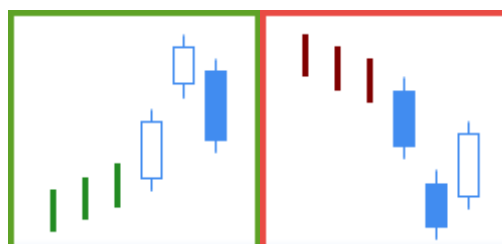
First candle: a candle in a downtrend/black body

Second candle: black body/the high below the prior low (gap)

Third candle: white body/the opening price within the prior body/the closing price within the body of the first line (gap close)

逻辑：

预示信号：上涨/下跌



Efficiency statistics (5/10 candlesticks testing period):

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	21	27	25	39
% of Occurrences	0.00 %	18.75 %	24.11 %	22.32 %	34.82 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	21	19	18	54
% of Occurrences	0.00 %	18.75 %	16.96 %	16.07 %	48.22 %

Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	24	36	30	55
% of Occurrences	0.00 %	16.55 %	24.83 %	20.69 %	37.93 %
Efficiency	NO DATA	FALSE	LOW	MEDIUM	HIGH
Number of Occurrences	0	22	31	26	66
% of Occurrences	0.00 %	15.17 %	21.38 %	17.93 %	45.52 %